

Florida Comprehensive Assessment Test (FCAT) 2.0 Value-Added Model Technical Report 2012-13

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FLORIDA VALUE-ADDED MODEL

INTRODUCTION

Florida is transforming its teacher evaluation system. Under Florida's successful Race to the Top application and the Student Success Act of 2011 (Senate Bill 736), districts are committed to developing and using new systems of educator evaluation that will measure improvements in student outcomes. The new evaluation system is a commitment to students to ensure that every classroom has an effective educator. Information from these evaluations is valuable in identifying effective teaching practices and areas for professional growth in a meaningful and timely manner.

The educator evaluation systems are developed locally by each school district. The evaluation consists of three measures of teacher performance: student outcomes, instructional practice, and professional responsibilities. Under Race to the Top and the Student Success Act, the guiding principle is to assess a teacher's contribution to student performance by measuring his or her students' growth in learning over a three-year time period in the teacher's subject area(s) of responsibility. Three years of student growth data are used to ensure consistency in teacher performance. When a complete set of data is available, student performance carries a weight of 50 percent in the teacher's evaluation. When fewer years of data are available, a district may choose to reduce the weight of the student outcome component to 40 percent.

For teachers of students taking statewide assessments, a statewide value-added model (VAM) is being used to calculate student learning growth. The role of the VAM is to differentiate teacher performance by using statistical models to measure student learning growth and attribute this growth to specific teachers. It accomplishes this by making use of Florida's longitudinal test score data from the Florida Comprehensive Assessment Test (FCAT) 2.0.

Working with a team of national researchers, Florida's value-added model for FCAT 2.0 data was selected and designed by a statewide committee of educators and education stakeholders.

Florida's statewide value-added model was selected based on the recommendations of the Student Growth Implementation Committee (SGIC), a 27-member group appointed by the Florida Commissioner of Education. The SGIC's role is to provide input, seek feedback, and present recommendations to the state for the development and implementation of teacher-level student growth models over the next four years.

The SGIC members, selected from more than 200 applicants, are teachers, principals, parents, union representatives, superintendents, school board members, district administrators, and postsecondary faculty who contribute expertise in various teaching subjects and grades; educational administration at all levels; and measurement and assessment experts. SGIC members represent Florida's diversity in culture, community, and region. The names and affiliations of the stakeholders are provided in Appendix A

On June 9, 2011, the Commissioner announced the acceptance of the SGIC's recommendation of a statewide value-added model using FCAT 2.0 data to measure individual student learning growth for evaluation of reading/language arts and mathematics teachers.

This technical report describes the value-added model and provides a summary of the 2012–13 results. The complete technical and computational details of the model are provided, as well as a summary of its results. The report is organized to provide some context on different modeling approaches that were presented to the SGIC.

A more comprehensive description of different value-added modeling techniques and how these different approaches relate to each other can be found in McCaffrey, Lockwood, Koretz, Louis, and Hamilton (2004).

Value-Added Modeling

Value-added modeling with educational test score data is the process of statistically analyzing student-level test scores collected over a period of time, with the intent of separating factors unique to students and schools from factors unique to a classroom teacher in order to attribute growth in student achievement to teachers and schools. The factor unique to a teacher is typically referred to as a *teacher effect* and is thought to be the causal impact of the teacher’s instructional efficacy on the student’s achievement as reflected via the test scores.

All VAMs have similar aims, but use different assumptions and principles. McCaffrey et al. (2004) have demonstrated the relationship across commonly used VAM approaches, showing how different models can be viewed as special cases of a more general longitudinal model. Nonetheless, it is fair to characterize VAMs as falling into two modeling categories: *learning path models* (typically referred to as variable persistence in the literature) and *covariate adjustment models*. These are described briefly below.

Two Common Value-Added Designs

All value-added models use longitudinal, student-level data. However, various models make use of the data in different ways. For instance, the variable persistence model (McCaffrey et al., 2004) uses the student-level data as the vector of outcomes in a mixed linear regression and makes assumptions about how prior year teachers contribute to current year learning gains. Such an approach implicitly assumes all students have a predetermined learning trajectory relative to the mean outcomes in the state and that current year teachers can alter that trajectory upward with good instruction or downward with less effective instruction.

Covariate adjustment models use the longitudinal data somewhat differently. In these models, the current year test score alone serves as the outcome in a linear regression and the prior year scores are used as conditioning variables. The models assume that students with a teacher of average effectiveness will obtain scores similar to other students with similar prior test scores and other characteristics. A teacher with a positive impact will alter the student’s current year outcome in a way such that the student performs better than is predicted, and a teacher with negative impact will affect the outcome such that the student does not perform as well as predicted.

In either case, the outcomes across different subject areas (e.g., reading and math) can be modeled marginally (a separate regression for math and another for reading) or jointly (where reading and math scores are simultaneously used as outcomes in a regression). Accommodating the latter approach presents an additional computational challenge, requiring a slight difference

in the parameterization of the within-student covariance matrix to account for correlation across error terms across the different tests.

However, Lockwood, McCaffrey, Mariano, and Setodji (2007) have shown that modeling the outcomes jointly has only very modest effects on estimates of value added. They show that the estimated teacher effects from a joint and marginal model were correlated greater than 0.99. The conditional variances of the teacher effects were also shown to differ only by nominal amounts.

There is one additional characteristic of the variable persistence model that does not appear in the covariate adjustment design—the impact of prior year teachers on current year outcomes. There are essentially two competing approaches on how to treat prior year teachers. One assumes complete persistence, meaning that the impact of a prior teacher on current outcomes does not dissipate at all (Ballou, Sanders, & Wright, 2004). In other words, the impact that prior teachers had on the students learning path perpetually remains with that student. This implies that prior teachers have permanently impacted student learning paths.

A second approach assumes that the impact of the prior teacher is an additional parameter of the model and it should be estimated from the data (McCaffrey et al, 2004). In most cases, the impact of the prior teacher diminishes in some fashion, meaning that the impact of prior year teachers most likely declines with students over time. Under these assumptions, the fact that last year's teacher had a large impact on the student's learning path does not mean that the student's learning path is forever altered by that teacher as is assumed with complete persistence.

One additional issue affecting covariate adjustment models that has a significant impact on the model results is the impact of measurement error in the predictor variables. It is well established that conditioning on variables measured with error yields bias in the model parameters (Greene, 2011). Some approaches use an instrumental variables (IV) approach (Meyer, 1992). The IV approach is typically used when one of the predictor variables is correlated with the error term in the regression model—a situation which occurs when predictor variables are measured with error. However, there are challenges in identifying what to use as useful instruments. Ignoring this error in high stakes accountability systems yields results that are subject to much criticism and should be accounted for.

The Florida Value-Added Model

The model implemented for the State of Florida is a covariate adjustment model that includes two prior test scores as predictor variables (except in grade 4, where only one predictor is available) and a set of measured characteristics for students, with teachers and schools treated as random effects. The model is an error-in-variables regression to account for the measurement error in the predictor variables used. A complete technical description of the model is found in the Methods section of this report.

The predictor variables used in the model are the same across all grades in both reading and math, and they are as follows:

- The number of subject-relevant courses in which the student is enrolled: Some students are enrolled in multiple courses that, according to the Florida course code directory, are linked to an FCAT 2.0 test. This variable counts, for each student, the number of courses

he or she is enrolled in that is linked to the FCAT 2.0 test via the course code directory. (See Appendix B).

- Two prior years of achievement scores: These are always the scores for the subject from the two prior years. For example, grade 8 math uses grades 6 and 7 FCAT 2.0 math scores as predictors. The only exception is grade 4, where only one prior score is available.
- Disabilities (SWD) status: This is a set of dichotomous variables denoting whether a student receives special education services for specific disabilities.
- English language learner (ELL) status: This is a dichotomous variable denoting whether students are currently enrolled in an English language learner program for less than two years.
- Gifted status: This is a dichotomous variable denoting if the student is enrolled in a gifted program.
- Attendance: This is a continuous variable counting the proportion of the total number of days the student was present during the school year.
- Mobility: This is a continuous variable counting the number of transitions across schools within the same school year.
- Difference from modal age in grade: This is a continuous variable computed as $x_i - x$ where x_i is the age in months for student i and x is the modal age for students enrolled in the same grade across the state.
- Class size: A continuous measure counting the number of students linked to teacher j .
- Heterogeneity of entering test scores in the class: A continuous variable computed as the interquartile range of student entering scores in the class.

Certain properties of the FCAT 2.0 scale caused some concern over its proposed interval nature. The FCAT 2.0 reports what is referred to as a developmental scaled score (DSS), which is a vertical scale measuring achievement across all grades. However, differences across grades in the rate of growth suggest gain scores may not be comparable in different grades. For instance, a much larger growth estimate is observed for grade 4 students than other grades, especially in reading.

One possible consequence of this pattern is that teachers in lower grades could appear to have larger value-added estimates relative to teachers in higher grades if all teachers were included in the same analysis. There are many possible ways to address this concern, some of which can be model-based (i.e., parameterize the model to account for these differences), or by running separate models for each grade. The latter was selected to address this concern.

Attribution of School Component to Teacher Effect

The VAM applied to the FCAT 2.0 data decomposes total variation in achievement into three orthogonal components: variance between schools, variance between teachers within a school, and variance between students taught by the same teacher.

While all parameters are estimated simultaneously, it is useful to consider the levels separately. First, student-level prior test scores (i.e., the lags) and other covariates are used to establish a statewide conditional expectation. This expectation is the score a student is expected to have, given his or her prior test score history and measured characteristics.

However, schools exhibit differential amounts of growth. The model cannot differentiate whether these differences are due to independent factors at the school (e.g., particularly effective leadership) or neighborhood, or simply due to the sorting of high-growth teachers into some schools rather than others. This is referred to as the *common school component* of student growth. The common school component therefore describes the amount of learning that is typical for students in each school that differs from the statewide conditional expectation.

Whether or not to estimate the common school component and teacher effects was a source of significant discussion for the SGIC, and it is a source of significant discussion in the value-added literature. If school effects are ignored and the model includes only teacher effects, then legitimate differences between teachers could be exaggerated, as some of the teacher effect includes the common school component. In other words, some teachers could appear to have higher (or lower) value-added than is true in reality, as their effect includes things that may be reasonably viewed as out of their immediate control, such as principal leadership. In contrast, if school effects are included, then some of the legitimate differences between teachers could be minimized. In other words, the school effect would capture some of the teacher effect. As a result, when estimating a value-added model, it needs to be determined whether the model should

- estimate the common school component, thus potentially removing some legitimate differences between teachers;
- ignore the common school component and assume that any difference in learning across classes is entirely a function of classroom instruction; or
- find some middle ground where teacher value-added scores include some but not all of the common school component.

If one subscribes to the notion that some of the school component reflects the sorting of more effective teachers into some schools, then a portion of the school effect may be credited back to teachers. However, the share of the school effect that should be attributed back to teachers cannot be determined via the value-added model, though this decision has important implications for interpreting teacher value-added scores, particularly when comparing teachers across schools.

Specifically, if the committee decided to add none of the school component (0%) to teachers' value-added scores, there would be one model but different growth expectations for otherwise similar students who attend different schools. A teacher whose students exhibited high growth in a school where high growth is typical could earn a lower value-added score than a second teacher

whose students exhibited less growth than the first teacher, but who teaches at a school where lower growth is typical. In contrast, if the committee decided to add all of the school component (100%) to teachers' value-added scores, there would be one model with the same standard for student outcomes, regardless of school. Teachers with high student growth in high-growth schools will earn higher value-added scores than teachers with lower growth at low-growth schools, regardless of how each teacher performed relative to the other teachers at the school.

After significant discussion, including a second follow-up meeting, the SGIC determined that some of the school effect should be attributed back to teachers. The proportion allocated back was put to vote and agreed upon by the SGIC as 50 percent. Hence, teacher effects are then subject to the following calculation:

$$\text{Teacher Value-Added Score} = \text{Unique Teacher Component} + .50 * \text{Common School Component}$$

This formula simply recognizes that some of the school component is a result of teacher actions within their schools, and therefore teachers should receive some credit for the typical growth of students in their school in their overall value-added effects.

METHODS

This section of the report provides the technical description of the model and its computational implementation. This is done to provide complete transparency into the statistical model. The model cannot be estimated using standard off-the-shelf software given the methods used to account for measurement error in the predictor variables. Hence, the methods described in this section outline how the SAS program code was developed for the FCAT 2.0 VAM.

Covariate Adjustment Model

The statistical value-added model implemented for the State of Florida is typically referred to as a covariate adjustment model (McCaffrey et al., 2004), as the current year observed score is conditioned on prior levels of student achievement as well as other covariates that may be related to the selection of students into classrooms.

In its most general form, the model can be represented as:

$$y_{ti} = \mathbf{X}_i \boldsymbol{\beta} + \sum_{r=1}^L y_{t-r,i} \gamma_{t-r} + \sum_{q=1}^Q \mathbf{Z}_{qi} \boldsymbol{\theta}_q + e_i$$

where y_{ti} is the observed score at time t for student i , $\mathbf{X}_i$ is the model matrix for the student and school level demographic variables, $\boldsymbol{\beta}$ is a vector of coefficients capturing the effect of any demographics included in the model, $y_{t-r,i}$ is the observed lag score at time $t-r$ ($r \in \{1, 2, \dots, L\}$), γ is the coefficient vector capturing the effects of lagged scores, and $\mathbf{Z}_{qi}$ is a design matrix with one column for each unit in q ($q \in \{1, 2, \dots, Q\}$) and one row for each student record in the

database. The entries in the matrix indicate the association between the student record represented in the row and the unit (e.g., school or teacher) represented in the column. Often the sub-matrices are concatenated such that $\mathbf{Z} = \{\mathbf{Z}_1, \dots, \mathbf{Z}_Q\}$. $\boldsymbol{\theta}_q$ is the vector of fixed or random effects for the units within a level. When the vector of effects is treated as random, then assume $\boldsymbol{\theta}_q \sim N(0, \sigma_{\boldsymbol{\theta}_q}^2)$ for each level of q .

Corresponding to $\mathbf{Z} = \{\mathbf{Z}_1, \dots, \mathbf{Z}_Q\}$, then define $\boldsymbol{\theta}' = (\boldsymbol{\theta}'_1, \dots, \boldsymbol{\theta}'_Q)$. In the subsequent sections, the notation $\boldsymbol{\delta}' = \{\boldsymbol{\beta}', \boldsymbol{\gamma}'\}$, and $\mathbf{W} = \{\mathbf{X}, \mathbf{y}_{t-1}, \mathbf{y}_{t-2}, \dots, \mathbf{y}_{t-L}\}$ is used to simplify computation and explanation.

Note that all test scores are measured with error, and that the magnitude of the error varies over the range of test scores. Treating the observed scores as if they were the true scores introduces a bias in the regression and this bias cannot be ignored within the context of a high stakes accountability system. Our approach to incorporating measurement error in the model is described in a later section.

Defining Teacher and School Effects in the Covariate Adjustment Model

The terms teacher and school “effect” imply something causal about the role of teachers and the school in the model. While the VAM clearly aims to disentangle factors idiosyncratic to a student and school from a teacher, there is some residual variation at the teacher level that is then attributed to the classroom teacher as instructional influence. The term teacher effect is retained because the VAM intends to identify this effect directly. However, the term school effect is not the most appropriate term. Accounting for other factors that are unique to students attending the school does not imply the school itself caused the effect. Instead, including a school component is capturing the latent effect of all potential impacts of the school community, including principal leadership and neighborhood effects. Hence, the term unique school component is used for this level.

Because the model is a covariate adjustment model, predictions for students are conditioned on their observed characteristics and prior test scores. That is, the conditional expectation for a student is formally defined as:

$$\begin{aligned} E(y_{ti}|\mathbf{W}) &= \mathbf{W}\boldsymbol{\delta} \\ &= \hat{y}_{ti} = \mathbf{W}\tilde{\boldsymbol{\delta}} \end{aligned}$$

Therefore, the basic idea is to find a conditional expectation for student i based on how other students with similar measured characteristics and prior test scores have performed, given the predicted value, $r_{ti} = y_{ti} - \hat{y}_{ti}$, which denotes the observed difference between the observed test performance and the predicted performance.

When $r_{ti} > 0$, this is attributed to the teacher as a positive classroom experience. The rationale supporting this assumption is based on the notion that student i performed better with teacher j than other students who had similar prior test scores and other measured characteristics (e.g.,

SWD status). That is, this student's test score was compared only to other similar students, and his or her achievement growth was larger than these other similar students. Conversely, when $r_{ti} < 0$ the assumption is the opposite.

The *teacher effect* is then based on this residual for each student using a weighted average of the residuals. The statistic is an empirical Bayes estimate, and the details of the computation are provided in the following technical section.

Because the estimated teacher effect is a weighted mean of the student level residuals, it is easy to see that a teacher with a positive value-added effect is one whose students, on average, perform better than conditionally expected, and a teacher with a negative value-added effect is one whose students perform lower than conditionally expected.

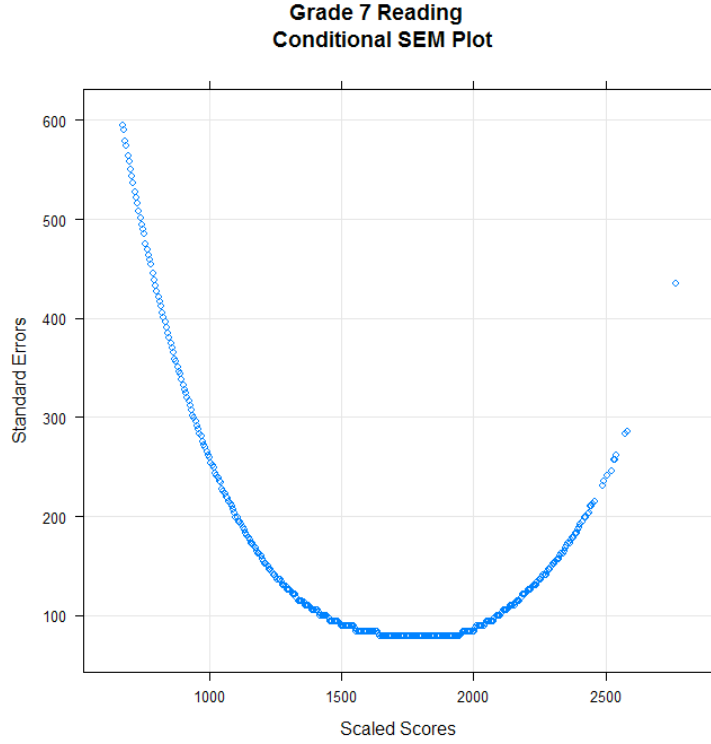
Measurement Error in Educational Achievement Tests and How its Effect Propagates into the VAM

Classical test theory posits that the observed test score is the sum of a true score plus a disturbance, $x = t + e$ and also posits that the observed score variance is the sum of two orthogonal variances, $var(x) = var(t) + var(e)$. From these basic principles, reliability is defined as the ratio of true score variance to the observed score variance, $\rho^2 = var(t)/var(x)$ and also written as the classical standard error of measurement as $\sigma_s = \sigma_x(1 - \rho)$. This classical standard error assumes homoscedasticity of the error term across the score range, and almost all error-in-variable models are constructed around the classical true score model (Kmenta, 1971).

Item response theory (IRT) extends these basic principles and introduces the concept of the test information function (TIF) (Lord, 1980). Rather than a single index characterizing the precision of the test, the TIF varies along the score continuum providing more information at certain points of the score range. The converse of the TIF, or the lack of information, is taken as the standard error of measurement at a particular score point. Because the TIF varies along the score continuum, so does the standard error of measurement.

In Florida, the conditional standard errors of measurement (CSEM) tend to be larger at the extremes of the score distribution as illustrated in Figure 1. Because there is heteroscedasticity in the error term, the error-in-variables (EiV) regression model must directly take this into account to yield efficient estimates of the model parameters. The derivation of the EiV model is based on these principles and is described in the next section.

Figure 1: Conditional Standard Errors of Measurement, Grade 7



It has been proposed that measurement error in the predictor variables can be ignored when the model conditions on at least three prior test scores (Sanders, 2006). It can, however, be shown analytically as follows that bias will remain, even when multiple scores are used.

Suppose the true score regression is $\mathbf{Y} = \mathbf{X}^* \boldsymbol{\beta} + \mathbf{e}$. Let $\mathbf{X} = \mathbf{X}^* + \mathbf{U}$ where $\mathbf{U}$ is a matrix of unobserved disturbances with the same dimensions as $\mathbf{X}$. The true score regression is then $\mathbf{Y} = (\mathbf{X} - \mathbf{U}) \boldsymbol{\beta} + \mathbf{e}$. Taking the maximum likelihood estimator for the true regression as

$$\hat{\boldsymbol{\beta}}_{\text{true}} = (\mathbf{X}^{*'} \mathbf{X}^*)^{-1} \mathbf{X}^{*'} \mathbf{y}$$

and then upon substitution the equation is

$$\begin{aligned} \hat{\boldsymbol{\beta}}_{\text{true}} &= ([\mathbf{X} - \mathbf{U}]' [\mathbf{X} - \mathbf{U}])^{-1} (\mathbf{X} - \mathbf{U})' \mathbf{y} \\ &= (\mathbf{X}' \mathbf{X} - \mathbf{X}' \mathbf{U} - \mathbf{U}' \mathbf{X} + \mathbf{U}' \mathbf{U})^{-1} (\mathbf{X}' \mathbf{y} - \mathbf{U}' \mathbf{y}). \end{aligned}$$

This simplifies because $E(\mathbf{X}' \mathbf{U}) = E(\mathbf{U}' \mathbf{X}) = E(\mathbf{U}' \mathbf{U})$ and $E(\mathbf{U}' \mathbf{y}) = 0$. Consequently, $\hat{\boldsymbol{\beta}}_{\text{true}} = (\mathbf{X}' \mathbf{X} - E(\mathbf{U}' \mathbf{U}))^{-1} \mathbf{X}' \mathbf{y}$, where as $\hat{\boldsymbol{\beta}}_{\text{obs}} = (\mathbf{X}' \mathbf{X})^{-1} \mathbf{X}' \mathbf{y}$ and the component $E(\mathbf{U}' \mathbf{U})$ propagates as bias.

This shows that adding in additional predictor variables does not guard against bias due to the measurement error in the predictors. The bias is a function of the measurement error in the predictor variables, not a function of the number of variables. However, this illustration does shed light on a possible solution to the problem associated with measurement error in the predictor variables, which is presented next.

Accounting for Measurement Error in the Predictor Variables

First re-express the true score regression as:

$$\mathbf{y}_t^* = \mathbf{X}\boldsymbol{\beta} + \sum_{r=1}^L \mathbf{y}_{t-r}^* \boldsymbol{\gamma}_{t-r} + \sum_{q=1}^Q \mathbf{Z}_q \boldsymbol{\theta}_q + \mathbf{e}$$

Then use $*$ to denote the variables without measurement error. For convenience, define the matrices $\mathbf{W} = \{\mathbf{X}, \mathbf{y}_{t-1}, \mathbf{y}_{t-2}, \dots, \mathbf{y}_{t-L}\}$, $\mathbf{W}^* = \{\mathbf{X}, \mathbf{y}_{t-1}^*, \mathbf{y}_{t-2}^*, \dots, \mathbf{y}_{t-L}^*\}$, and $\boldsymbol{\delta}' = \{\boldsymbol{\beta}', \boldsymbol{\gamma}'\}$. Label the matrix of measurement error disturbances $\mathbf{U}$ for disturbances associated with $\mathbf{y}_{t-1}, \mathbf{y}_{t-2}, \dots, \mathbf{y}_{t-L}$, and label the vector of measurement disturbances with the dependent variable, $\mathbf{y}_t$, $\mathbf{v}$, hence $\mathbf{y}_t = \mathbf{y}_t^* + \mathbf{v}$. Let $\mathbf{U}$ have the same dimension as $\mathbf{W}$, but only the final L columns of $\mathbf{U}$ are non-zero, so $\mathbf{W} = \mathbf{W}^* + \mathbf{U}$. If those disturbances were observed, the parameters $\{\boldsymbol{\delta}', \boldsymbol{\theta}'\}$ can be estimated using Henderson's methods (1950) by solving the following mixed model equations:

$$\begin{pmatrix} \mathbf{W}^{*'} \boldsymbol{\Omega}^{-1} \mathbf{W}^* & \mathbf{W}^{*'} \boldsymbol{\Omega}^{-1} \mathbf{Z} \\ \mathbf{Z}' \boldsymbol{\Omega}^{-1} \mathbf{W}^* & \mathbf{Z}' \boldsymbol{\Omega}^{-1} \mathbf{Z} + \mathbf{D}^{-1} \end{pmatrix} \begin{pmatrix} \boldsymbol{\delta} \\ \boldsymbol{\theta} \end{pmatrix} = \begin{pmatrix} \mathbf{W}' \boldsymbol{\Omega}^{-1} \mathbf{y}^* \\ \mathbf{Z}' \boldsymbol{\Omega}^{-1} \mathbf{y}^* \end{pmatrix}$$

The matrix $\mathbf{D}$ is comprised of Q diagonal blocks, one for each level in the hierarchy. Each diagonal is constructed as $\sigma_q^2 \mathbf{I}_q$ where $\mathbf{I}_q$ is an identity matrix with dimension equal to the number of units at level q , and σ_q^2 is the estimated variance of the random effects among units at level q . When concatenated diagonally, the square matrix $\mathbf{D}$ has dimension $m = \sum_{q=1}^Q J_q$.

Two complications intervene. First, $\mathbf{U}$ cannot be observed, and second, the unobservable nature of this term along with the heterogeneous measurement error in the dependent variable renders this estimator inefficient.

Addressing the first issue, upon expansion it is observed that

$$\mathbf{W}^{*'} \boldsymbol{\Omega}^{-1} \mathbf{W}^* = (\mathbf{W}' - \mathbf{U}') \boldsymbol{\Omega}^{-1} (\mathbf{W} - \mathbf{U}) = \mathbf{W}' \boldsymbol{\Omega}^{-1} \mathbf{W} - \mathbf{U}' \boldsymbol{\Omega}^{-1} \mathbf{W} - \mathbf{W}' \boldsymbol{\Omega}^{-1} \mathbf{U} + \mathbf{U}' \boldsymbol{\Omega}^{-1} \mathbf{U}$$

Since $\mathbf{W} = \mathbf{W}^* + \mathbf{U}$, so then $E(\mathbf{W}'\mathbf{\Omega}^{-1}\mathbf{U}) = E(\mathbf{U}'\mathbf{\Omega}^{-1}\mathbf{U})$, $E(\mathbf{U}'\mathbf{\Omega}^{-1}\mathbf{W}) = E(\mathbf{U}'\mathbf{\Omega}^{-1}\mathbf{U})$, hence $\mathbf{W}^{*\prime}\mathbf{\Omega}^{-1}\mathbf{W}^* = \mathbf{W}'\mathbf{\Omega}^{-1}\mathbf{W} - \mathbf{U}'\mathbf{\Omega}^{-1}\mathbf{U}$. Furthermore, it is $\mathbf{W}^{*\prime}\mathbf{\Omega}^{-1}\mathbf{Z} = E(\mathbf{W}'\mathbf{\Omega}^{-1}\mathbf{Z})$, $\mathbf{Z}'\mathbf{\Omega}^{-1}\mathbf{W}^* = E(\mathbf{Z}'\mathbf{\Omega}^{-1}\mathbf{W})$, and $\begin{pmatrix} \mathbf{W}'\mathbf{\Omega}^{-1}\mathbf{y}^* \\ \mathbf{Z}'\mathbf{\Omega}^{-1}\mathbf{y}^* \end{pmatrix} = E\left(\begin{pmatrix} \mathbf{W}'\mathbf{\Omega}^{-1}\mathbf{y} \\ \mathbf{Z}'\mathbf{\Omega}^{-1}\mathbf{y} \end{pmatrix}\right)$.

Addressing the second issue, both the right side and left side variables in the model equation measured with error contribute to the heteroscedasticity. While the correction $\mathbf{U}'\mathbf{\Omega}^{-1}\mathbf{U}$ eliminates the bias due to measurement error, it is still not an error-free measure of $\mathbf{y}$ for any time period. Therefore, the residual is comprised of

$$\bar{\mathbf{y}} - \mathbf{W}'\boldsymbol{\delta} = -\mathbf{U}'\boldsymbol{\delta} + \mathbf{v} + \mathbf{e}.$$

where $\bar{\mathbf{y}} = \mathbf{y} - \mathbf{Z}\tilde{\boldsymbol{\theta}}$, $\tilde{\boldsymbol{\theta}}$ is the conditional mean of the random effects. The residual variance of any given observation is $\sigma_{ti}^2 = \sigma_{\epsilon}^2 + \sigma_{v(t_i)}^2 + \sum_{r=1}^L \delta_{t-r}^2 \sigma_{u,t-r(i)}^2$, where $\sigma_{v(t_i)}^2$ is known measurement error variance of the dependent variable for examinee i at time t . Similarly, $\sigma_{u,t-r(i)}^2$ are the known measurement error variances of r prior test scores. Now, let $\mathbf{\Omega}$ be a diagonal matrix of dimension N with diagonal elements σ_{ti}^2 .

With the above, the mixed model equations are defined as

$$\begin{pmatrix} \mathbf{W}'\mathbf{\Omega}^{-1}\mathbf{W} - \mathbf{U}'\mathbf{\Omega}^{-1}\mathbf{U} & \mathbf{W}'\mathbf{\Omega}^{-1}\mathbf{Z} \\ \mathbf{Z}'\mathbf{\Omega}^{-1}\mathbf{W} & \mathbf{Z}'\mathbf{\Omega}^{-1}\mathbf{Z} + \mathbf{D}^{-1} \end{pmatrix} \begin{pmatrix} \boldsymbol{\delta} \\ \boldsymbol{\theta} \end{pmatrix} = \begin{pmatrix} \mathbf{W}'\mathbf{\Omega}^{-1}\mathbf{y} \\ \mathbf{Z}'\mathbf{\Omega}^{-1}\mathbf{y} \end{pmatrix}$$

Replacing $\mathbf{U}'\mathbf{\Omega}^{-1}\mathbf{U}$ with Its Expectations

As indicated, $\mathbf{U}$ is unobserved and so solving the mixed model equation cannot be computed unless $\mathbf{U}$ is replaced with some observed values. First, redefine the mixed model equations as:

$$\begin{pmatrix} \mathbf{W}'\mathbf{\Omega}^{-1}\mathbf{W} - \mathbf{S} & \mathbf{W}'\mathbf{\Omega}^{-1}\mathbf{Z} \\ \mathbf{Z}'\mathbf{\Omega}^{-1}\mathbf{W} & \mathbf{Z}'\mathbf{\Omega}^{-1}\mathbf{Z} + \mathbf{D}^{-1} \end{pmatrix} \begin{pmatrix} \boldsymbol{\delta} \\ \boldsymbol{\theta} \end{pmatrix} = \begin{pmatrix} \mathbf{W}'\mathbf{\Omega}^{-1}\mathbf{y} \\ \mathbf{Z}'\mathbf{\Omega}^{-1}\mathbf{y} \end{pmatrix}$$

where $\mathbf{S}$ is a diagonal “correction” matrix with dimensions $p \times p$ accounting for measurement error in the predictor variables, $p = p_{\mathbf{X}} + L$, and $p_{\mathbf{X}}$ is the column dimension of $\mathbf{X}$.

The matrix $\mathbf{S}$ is used in lieu of $\mathbf{U}'\mathbf{\Omega}^{-1}\mathbf{U}$ based on the following justification. Recall that $\mathbf{\Omega}$ was previously defined as $\text{diag}(\sigma_{t1}^2, \sigma_{t2}^2, \dots, \sigma_{tN}^2)$ and the matrix of unobserved disturbances is:

$$U = \begin{bmatrix} \mathbf{0}_{p_X} & \mathbf{0} \\ \mathbf{0} & U_L \end{bmatrix}$$

where $\mathbf{0}_{p_X}$ is a matrix of dimension of p_X with elements of 0, and

$$U_L = \begin{bmatrix} u_{11} & u_{12} & \dots & u_{1L} \\ u_{21} & u_{22} & \dots & u_{2L} \\ \vdots & \vdots & \ddots & \vdots \\ u_{N1} & u_{N2} & \dots & u_{NL} \end{bmatrix}$$

The theoretical result of the matrix operation yields the following symmetric matrix:

$$U_L' \Omega^{-1} U_L = \begin{bmatrix} \sum_{i=1}^N \frac{1}{\sigma_{ti}^2} u_{i1}^2 & & & \dots \\ \sum_{i=1}^N \frac{1}{\sigma_{ti}^2} u_{i1} u_{i2} & \sum_{i=1}^N \frac{1}{\sigma_{ti}^2} u_{i2}^2 & & \dots \\ \vdots & \vdots & \ddots & \vdots \\ \sum_{i=1}^N \frac{1}{\sigma_{ti}^2} u_{i1} u_{iL} & \sum_{i=1}^N \frac{1}{\sigma_{ti}^2} u_{i2} u_{iL} & \dots & \sum_{i=1}^N \frac{1}{\sigma_{ti}^2} u_{iL}^2 \end{bmatrix}$$

The theoretical result is limited only because u_{ip} is not observed, it is latent. However, $E(u_{ip} u_{ip}) = \sigma_{ip}^2$ where σ_{ip}^2 is taken as the conditional standard error of measurement for student i . The theoretical result also simplifies because errors of measurement on different variables are by expectation uncorrelated, $E(u_{ip} u_{ip'}) = 0$ where $p \neq p'$.

Because the conditional standard error of measurement that varies for each student i and the off-diagonals can be ignored, let $\mathbf{S}$ be:

$$\mathbf{S} = \text{diag} \left(0, \dots, 0, \sum_{i=1}^N \frac{1}{\sigma_{ti}^2} \sigma_{u,t-1(i)}^2, \sum_{i=1}^N \frac{1}{\sigma_{ti}^2} \sigma_{u,t-2(i)}^2, \dots, \sum_{i=1}^N \frac{1}{\sigma_{ti}^2} \sigma_{u,t-L(i)}^2 \right)$$

where $\sigma_{u,j(i)}^2$ denotes the measurement error variance for the j th, $j = (1, 2, \dots, L)$, variable measured with error.

Standard Errors of Fixed and Random Effects

Henderson's method (1950) provides that the standard errors of the fixed and random effects can be computed as:

$$\text{Var}\begin{pmatrix} \delta \\ \theta \end{pmatrix} = \begin{pmatrix} \mathbf{W}'\Omega^{-1}\mathbf{W} - \mathbf{S} & \mathbf{W}'\Omega^{-1}\mathbf{Z} \\ \mathbf{Z}'\Omega^{-1}\mathbf{W} & \mathbf{Z}'\Omega^{-1}\mathbf{Z} + \mathbf{D}^{-1} \end{pmatrix}^{-1} \begin{pmatrix} \mathbf{W}'\Omega^{-1}\mathbf{W} & \mathbf{W}'\Omega^{-1}\mathbf{Z} \\ \mathbf{Z}'\Omega^{-1}\mathbf{W} & \mathbf{Z}'\Omega^{-1}\mathbf{Z} + \mathbf{D}^{-1} \end{pmatrix} \begin{pmatrix} \mathbf{W}'\Omega^{-1}\mathbf{W} - \mathbf{S} & \mathbf{W}'\Omega^{-1}\mathbf{Z} \\ \mathbf{Z}'\Omega^{-1}\mathbf{W} & \mathbf{Z}'\Omega^{-1}\mathbf{Z} + \mathbf{D}^{-1} \end{pmatrix}^{-1}$$

Note that

$$\begin{aligned} & \begin{pmatrix} \mathbf{W}'\Omega^{-1}\mathbf{W} - \mathbf{S} & \mathbf{W}'\Omega^{-1}\mathbf{Z} \\ \mathbf{Z}'\Omega^{-1}\mathbf{W} & \mathbf{Z}'\Omega^{-1}\mathbf{Z} + \mathbf{D}^{-1} \end{pmatrix}^{-1} \begin{pmatrix} \mathbf{W}'\Omega^{-1}\mathbf{W} & \mathbf{W}'\Omega^{-1}\mathbf{Z} \\ \mathbf{Z}'\Omega^{-1}\mathbf{W} & \mathbf{Z}'\Omega^{-1}\mathbf{Z} + \mathbf{D}^{-1} \end{pmatrix} \begin{pmatrix} \mathbf{W}'\Omega^{-1}\mathbf{W} - \mathbf{S} & \mathbf{W}'\Omega^{-1}\mathbf{Z} \\ \mathbf{Z}'\Omega^{-1}\mathbf{W} & \mathbf{Z}'\Omega^{-1}\mathbf{Z} + \mathbf{D}^{-1} \end{pmatrix}^{-1} \\ &= \begin{pmatrix} \mathbf{W}'\Omega^{-1}\mathbf{W} - \mathbf{S} & \mathbf{W}'\Omega^{-1}\mathbf{Z} \\ \mathbf{Z}'\Omega^{-1}\mathbf{W} & \mathbf{Z}'\Omega^{-1}\mathbf{Z} + \mathbf{D}^{-1} \end{pmatrix}^{-1} \begin{pmatrix} \mathbf{W}'\Omega^{-1}\mathbf{W} - \mathbf{S} & \mathbf{W}'\Omega^{-1}\mathbf{Z} \\ \mathbf{Z}'\Omega^{-1}\mathbf{W} & \mathbf{Z}'\Omega^{-1}\mathbf{Z} + \mathbf{D}^{-1} \end{pmatrix} + \\ & \begin{pmatrix} \mathbf{S} & \mathbf{0} \\ \mathbf{0} & \mathbf{0} \end{pmatrix} \begin{pmatrix} \mathbf{W}'\Omega^{-1}\mathbf{W} - \mathbf{S} & \mathbf{W}'\Omega^{-1}\mathbf{Z} \\ \mathbf{Z}'\Omega^{-1}\mathbf{W} & \mathbf{Z}'\Omega^{-1}\mathbf{Z} + \mathbf{D}^{-1} \end{pmatrix}^{-1} \\ &= \begin{pmatrix} \mathbf{W}'\Omega^{-1}\mathbf{W} - \mathbf{S} & \mathbf{W}'\Omega^{-1}\mathbf{Z} \\ \mathbf{Z}'\Omega^{-1}\mathbf{W} & \mathbf{Z}'\Omega^{-1}\mathbf{Z} + \mathbf{D}^{-1} \end{pmatrix}^{-1} \\ &+ \begin{pmatrix} \mathbf{W}'\Omega^{-1}\mathbf{W} - \mathbf{S} & \mathbf{W}'\Omega^{-1}\mathbf{Z} \\ \mathbf{Z}'\Omega^{-1}\mathbf{W} & \mathbf{Z}'\Omega^{-1}\mathbf{Z} + \mathbf{D}^{-1} \end{pmatrix}^{-1} \begin{pmatrix} \mathbf{S} & \mathbf{0} \\ \mathbf{0} & \mathbf{0} \end{pmatrix} \begin{pmatrix} \mathbf{W}'\Omega^{-1}\mathbf{W} - \mathbf{S} & \mathbf{W}'\Omega^{-1}\mathbf{Z} \\ \mathbf{Z}'\Omega^{-1}\mathbf{W} & \mathbf{Z}'\Omega^{-1}\mathbf{Z} + \mathbf{D}^{-1} \end{pmatrix}^{-1} \\ & \text{Let } \begin{pmatrix} \mathbf{W}'\Omega^{-1}\mathbf{W} - \mathbf{S} & \mathbf{W}'\Omega^{-1}\mathbf{Z} \\ \mathbf{Z}'\Omega^{-1}\mathbf{W} & \mathbf{Z}'\Omega^{-1}\mathbf{Z} + \mathbf{D}^{-1} \end{pmatrix} = \begin{pmatrix} \mathbf{A} & \mathbf{B} \\ \mathbf{B}' & \mathbf{C} \end{pmatrix} \text{ and} \\ & \begin{pmatrix} \mathbf{W}'\Omega^{-1}\mathbf{W} - \mathbf{S} & \mathbf{W}'\Omega^{-1}\mathbf{Z} \\ \mathbf{Z}'\Omega^{-1}\mathbf{W} & \mathbf{Z}'\Omega^{-1}\mathbf{Z} + \mathbf{D}^{-1} \end{pmatrix}^{-1} = \begin{pmatrix} \mathbf{C}_{11} & \mathbf{C}_{12} \\ \mathbf{C}_{12}' & \mathbf{C}_{22} \end{pmatrix}. \text{ Then } \mathbf{C}_{11} = (\mathbf{A} - \mathbf{B}\mathbf{C}^{-1}\mathbf{B}')^{-1}, \\ & \mathbf{C}_{12} = -(\mathbf{A} - \mathbf{B}\mathbf{C}^{-1}\mathbf{B}')^{-1}\mathbf{B}\mathbf{C}^{-1} \text{ and} \\ & \mathbf{C}_{22} = \mathbf{C}^{-1} + \mathbf{C}^{-1}\mathbf{B}'(\mathbf{A} - \mathbf{B}\mathbf{C}^{-1}\mathbf{B}')^{-1}\mathbf{B}\mathbf{C}^{-1}. \end{aligned}$$

Note that if it is assumed that no teachers teach at more than one school (and the columns in $\mathbf{Z}$ are appropriately ordered) and no student was associated with more than one school, the $\mathbf{C}$ matrix is block diagonal with a block for each school containing entries for each of the teachers teaching at that school. Under this assumption $\mathbf{C}^{-1}$ can be computed efficiently and the other computations also become tractable even for very large data sets. If there are some students who were in two or more schools during the current year, a few entries in the matrix will not be in the block diagonal, but these will simply be ignored for the purposes of computing the variance terms.

Now

$$\text{var}\begin{pmatrix} \delta \\ \theta \end{pmatrix} = \begin{pmatrix} \mathbf{C}_{11} & \mathbf{C}_{12} \\ \mathbf{C}_{12}' & \mathbf{C}_{22} \end{pmatrix} + \begin{pmatrix} \mathbf{C}_{11}\mathbf{S}\mathbf{C}_{11} & \mathbf{C}_{11}\mathbf{S}\mathbf{C}_{12} \\ \mathbf{C}_{12}'\mathbf{S}\mathbf{C}_{11} & \mathbf{C}_{12}'\mathbf{S}\mathbf{C}_{12} \end{pmatrix}$$

The standard errors of the fixed effects are computed as:

$$\text{var}(\delta) = \mathbf{C}_{11} + \mathbf{C}_{11}\mathbf{S}\mathbf{C}_{11}$$

And the conditional variances of the random effects are:

$$\text{E}(\text{Var}(\tilde{\theta}|\mathbf{y})) = \text{E}[\mathbf{C}_{22} + \mathbf{C}_{12}'\mathbf{S}\mathbf{C}_{12}]$$

In order to compute the variances only the diagonal is important and $\mathbf{C}'_{12}\mathbf{S}\mathbf{C}_{12}$ can be computed easily if $\mathbf{C}$ is block diagonal. That is, the i th diagonal block comes from the i th diagonal block $\mathbf{C}_i$ of $\mathbf{C}$, and the i th block $\mathbf{B}_i$ of $\mathbf{B}$. It equals: $\mathbf{C}_i^{-1}\mathbf{B}'_i(\mathbf{A} - \mathbf{B}\mathbf{C}^{-1}\mathbf{B}')^{-1}\mathbf{S}(\mathbf{A} - \mathbf{B}\mathbf{C}^{-1}\mathbf{B}')^{-1}\mathbf{B}_i\mathbf{C}_i^{-1}$.

Hence, at level q , the conditional variances are:

$$\mathbf{E}\left(\mathbf{Var}(\tilde{\boldsymbol{\theta}}_q|\mathbf{y})\right) = \frac{1}{J_q} \text{tr}\left(\mathbf{Var}(\tilde{\boldsymbol{\theta}}|\mathbf{y})_q\right)$$

where $\text{tr}(\cdot)$ denotes the trace of the matrix, and $\mathbf{var}(\tilde{\boldsymbol{\theta}}|\mathbf{y})_q$ is the submatrix containing the entries at level q . Now compute σ_q^2 as

$$\sigma_q^2 = \mathbf{E}\left(\mathbf{var}(\tilde{\boldsymbol{\theta}}_q|\mathbf{y})\right) + \frac{1}{q-1}\left(\boldsymbol{\theta}_q - m_{\boldsymbol{\theta}_q}\mathbf{1}\right)'\left(\boldsymbol{\theta}_q - m_{\boldsymbol{\theta}_q}\mathbf{1}\right)$$

where $m_{\boldsymbol{\theta}_q}$ is the mean of $\boldsymbol{\theta}_q$ and $\mathbf{1}$ is a vector of 1's with the same dimension as $\boldsymbol{\theta}_q$.

The residual variance can now be estimated as

$$\sigma_e^2 = \mathbf{Var}(\mathbf{e}) - \frac{1}{N}\left(\sum_{i=1}^N\left(\sigma_{v(ti)}^2 + \sum_{r=1}^L\delta_{t-r}^2\sigma_{u,t-r(i)}^2\right)\right)$$

where $\mathbf{e} = \bar{\mathbf{y}} - \mathbf{W}\boldsymbol{\delta}$ and $\mathbf{var}(\mathbf{e}) = \frac{\mathbf{e}'\mathbf{e}}{N-p}$, N is the total number of students and p is the number of fixed effect parameter estimated.

Computing the Value-Added Model

The implementation of the value-added model uses the well-known Expectation-Maximization (EM) algorithm (Dempster, Laird, & Rubin; 1977) to solve the mixed model equations. All computing takes place within SAS IML, which has functions for sparse matrix methods, including a sparse Cholesky decomposition. These methods make computing more feasible to larger data sets when the matrices retain their sparseness.

The solutions for the fixed effects and predictions for the random effects are obtained using the Expectation-Maximization (EM) algorithm via the following steps:

1. Construct starting values for the variances of the random effects including σ_e^2 and σ_q^2 for all levels of q . These are used in the matrices $\boldsymbol{\Omega}$ and $\mathbf{D}$, respectively.
2. Solve the linear system for $\boldsymbol{\delta}$ and $\boldsymbol{\theta}$. The system is sparse and can be solved using sparse matrix methods.

3. Update the values of the variances of the random effects including σ_{θ}^2 and σ_q^2 using the methods described above.
4. Iterate between steps 2 and 3 until $|\delta_j^t - \delta_j^{t-1}| < \text{con } \forall j$, where con is the convergence criteria by default set at 1e-5.

Final Estimates of the Teacher Value-Added Score

The SGIC recommended that some of the unique school component be added back to the teacher effect. This is then formally denoted as the teacher value-added score as:

$$\theta_t^* = \theta_t + .5\theta_{(s)t}$$

Where θ_t is the empirical Bayes estimate of the teacher effect, $\theta_{(s)t}$ is the empirical Bayes estimate of the unique school component and the notation $s(t)$ is used to mean that teacher t is in school s . Because the revised teacher effect is a linear combination of the teacher and school effects, the final conditional variance of the teacher effect no longer applies and a new variance estimator is required. However, this is easily established using the conditional variances of the empirical Bayes estimates as the variance of the linear combination, which is denoted as:

$$\text{var}(\theta_t^*) = \text{var}(\theta_t) + .25\text{var}(\theta_{(s)t}) + \text{cov}(\theta_t, \theta_{(s)t})$$

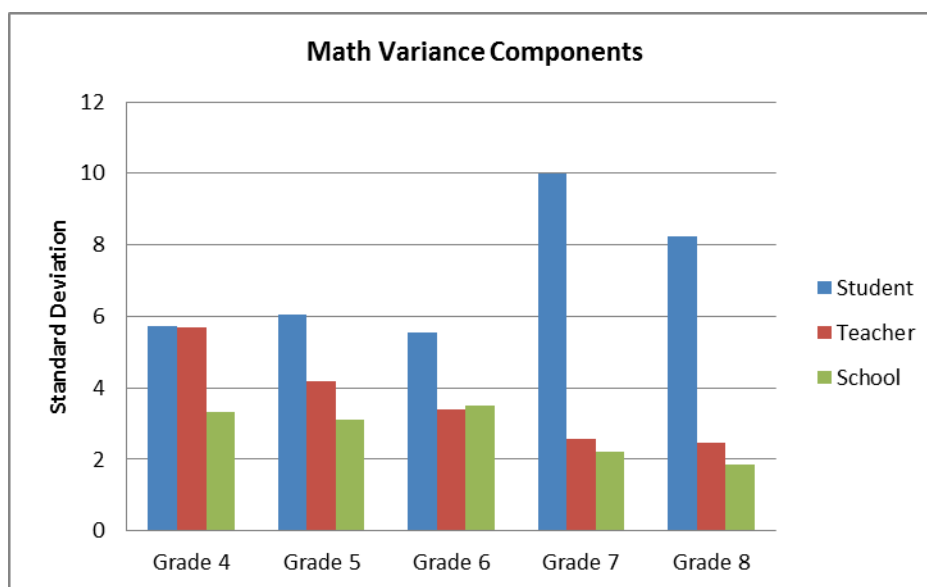
RESULTS

Summaries of the model results for reading and math across all grades for the 2012–13 school year are provided in this section.

Teacher and School Variance Components

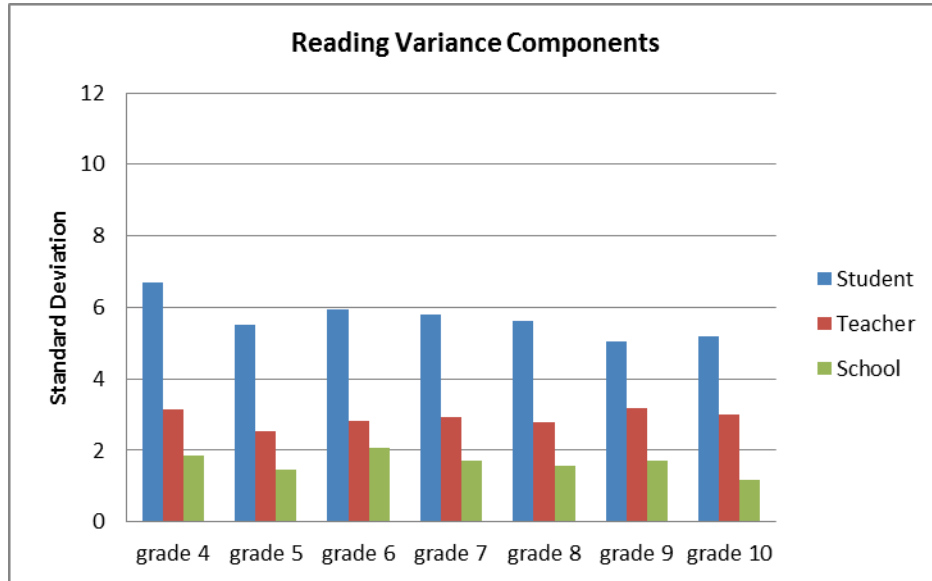
For each grade, the value-added models were fit to the data with both teacher and school random effects. The model decomposes total variation in the outcome into three orthogonal components: variance between schools, variance between teachers within a school, and variance between students within a class. Figures 2 and 3 below show the standard deviation of the student, teacher, and school components in math and reading across all grades. The vertical axis presents the standard deviation of each component in test score points.

Figure 2. Magnitude of Teacher and School Variance Components: Mathematics



Formal likelihood ratio tests are not performed between models with teacher effects only and those with both teacher effect and school component. However, using the visual displays as a heuristic to gauge the magnitude of the variance components, it is observed that school components seem to account for a non-trivial amount of the variance in the outcome variable.

It is clear that the variance between students taught by the same teacher is the largest of all variance components, although in grade 4 math the magnitude of the teacher component is nearly as large as that of the student component. The magnitude of the school components suggest that systematic school components exist and explain differences in how students perform, above and beyond that which is explained by the teacher effects. In general, the variance between schools tends to be smaller than the variance between teachers within a school. The notable exception to this trend is grade 6 math, where the magnitude of the school component appears to be slightly larger than that of the teacher component.

Figure 3. Magnitude of Teacher and School Variance Components: Reading

Teacher and School Standard Errors

When value-added models estimate teacher effects and school components, they do so with a certain level of uncertainty. Factors such as the variation in student scores, the type and number of students attributed to a school, and the number of teachers in a school can all influence this level of uncertainty. The level of uncertainty for a particular teacher effect or school component is summarized in the standard error for each estimate.

The tables in Appendix C present three statistics for each subject and grade level. The first column for each subject displays the square root of the mean squared standard error of the teacher VAM estimates:

$$\sqrt{N^{-1} \sum_{j=1}^N se(\hat{\theta}_j)^2}$$

The second column displays the standard deviation of the teacher VAM estimates, and the third shows displays the reliability ratio, which is the ratio of the first column to the second. The reliability ratio compares the precision of each teacher VAM estimates with the overall distribution of teacher VAM estimates. The smaller the ratio, the better one is able to distinguish among teachers on the basis of effectiveness. The results presented in Table 1 imply that the math results offer greater precision than reading results. The mean and standard deviation of teacher VAM scores within each district are presented in Appendix D, and the mean and standard deviation of school VAM scores in each district are presented in Appendix E.

Table 1. Precision of Teacher VAM Scores, 2012-13

Reliability Ratios--Teacher VAM Scores			
Grade	Combined	Math	Reading
4	0.541	0.456	0.643
5	0.549	0.513	0.651
6	0.585	0.534	0.660
7	0.659	0.699	0.662
8	0.656	0.692	0.658
9	0.616		0.616
10	0.660		0.660

Relationship Between Teacher Value-Added Scores and Classroom Characteristics

In this section the extent to which teacher VAM scores are correlated with characteristics of the students taught by teachers is analyzed. The purpose of this review is to assess the degree to which there are observed differences in the VAM results across teachers given the types of students they teach. Ideally, these correlations should be close to 0, indicating no relationship between VAM scores and student characteristics. However, non-zero correlations do not always indicate problems. Some non-zero correlations could exist for plausible reasons. For instance, there may not be an equal distribution of teaching abilities across the Florida counties, and this could cause some differences to appear in the results. Figure 4 shows the relationship between teacher VAM scores and the mean prior test score of students in the class. Figures 5 through 9 show the relationship between teacher VAM scores and characteristics of students taught by teachers from low-income households (using as a proxy eligibility for the federal free and reduced-price meals program), and the percentages of those with disabilities, English language learners, gifted, and non-white.

Figure 4: Teacher VAM Score and Normalized Mean Prior Test Score of Students in Class

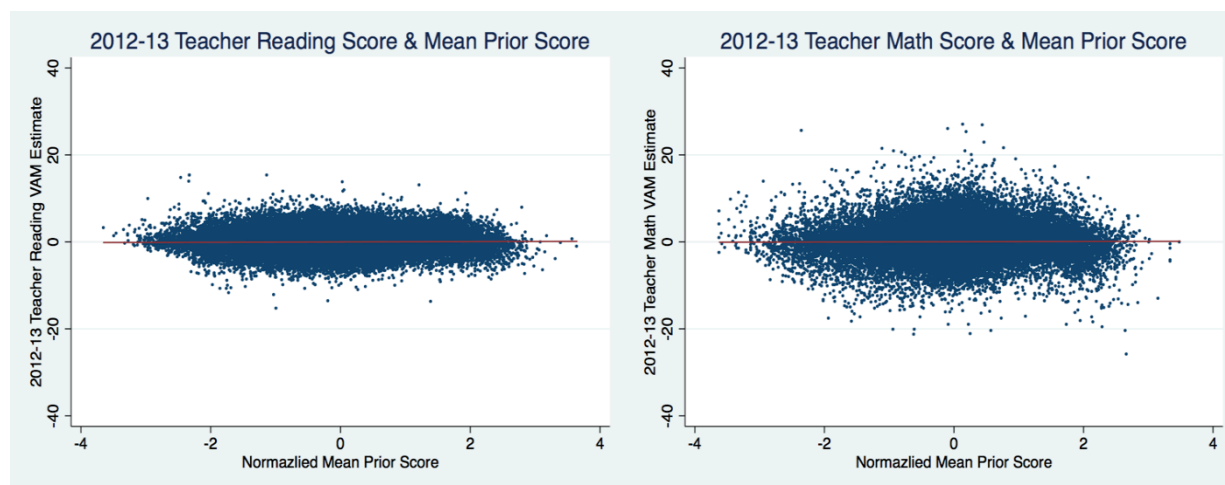


Figure 5: Teacher VAM Score and Share of Students in Class Who Qualify for Subsidized Meals

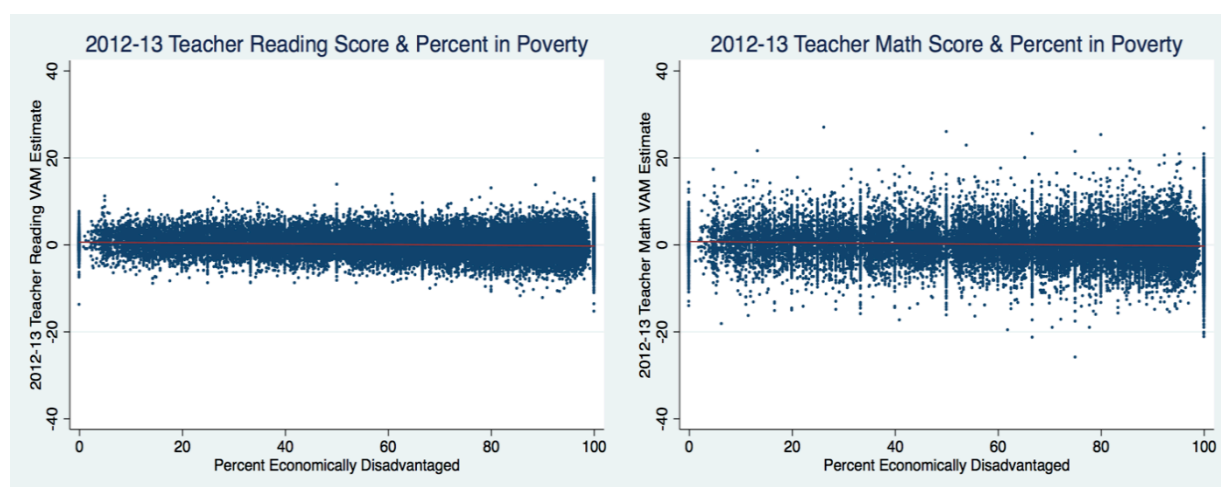


Figure 6: Teacher VAM Score and Share of Students in Class With Disabilities

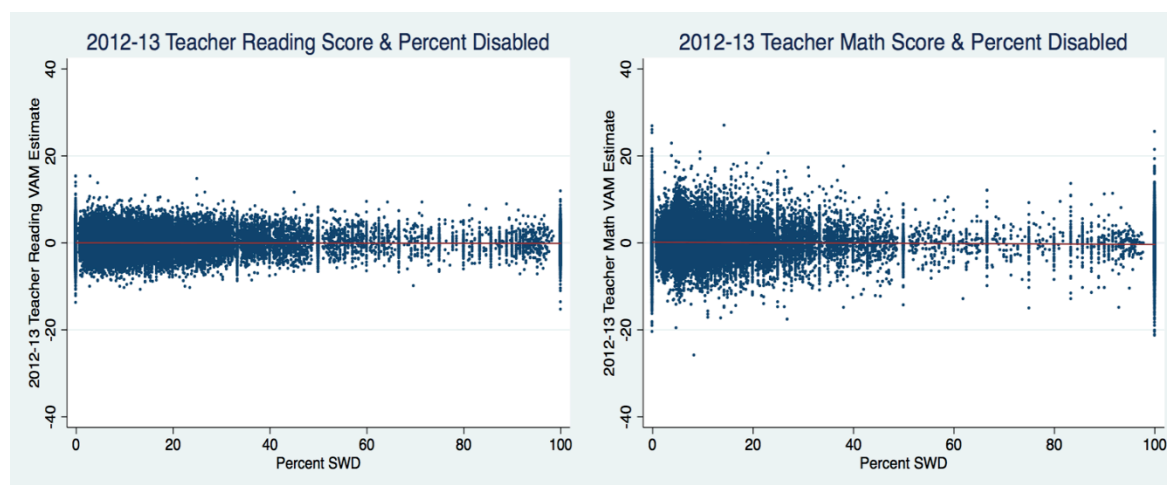


Figure 7: Teacher VAM Score and Share of Students in Class Who Are English Language Learners

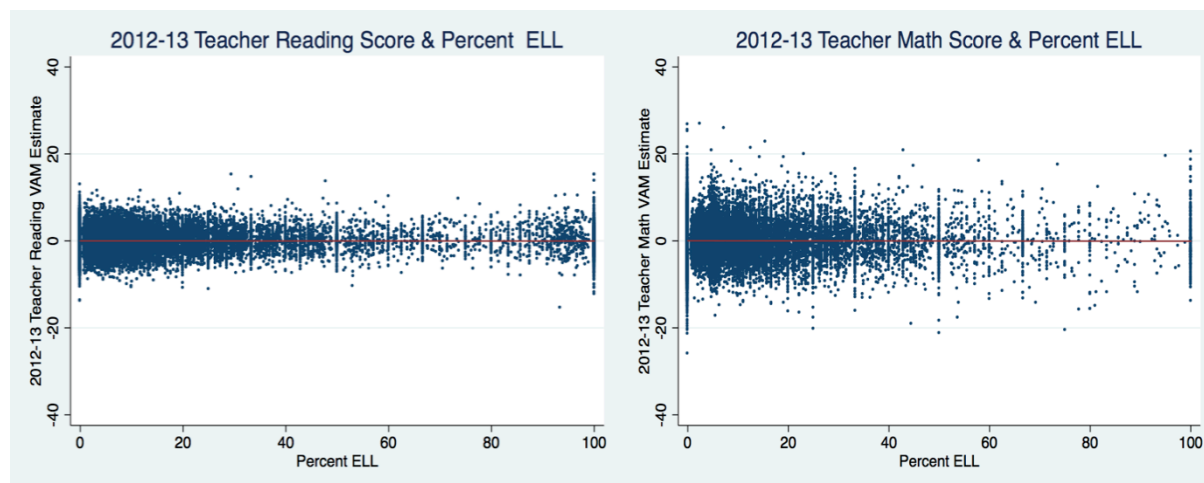


Figure 8: Teacher VAM Score and Share of Students in Class Who Are Gifted

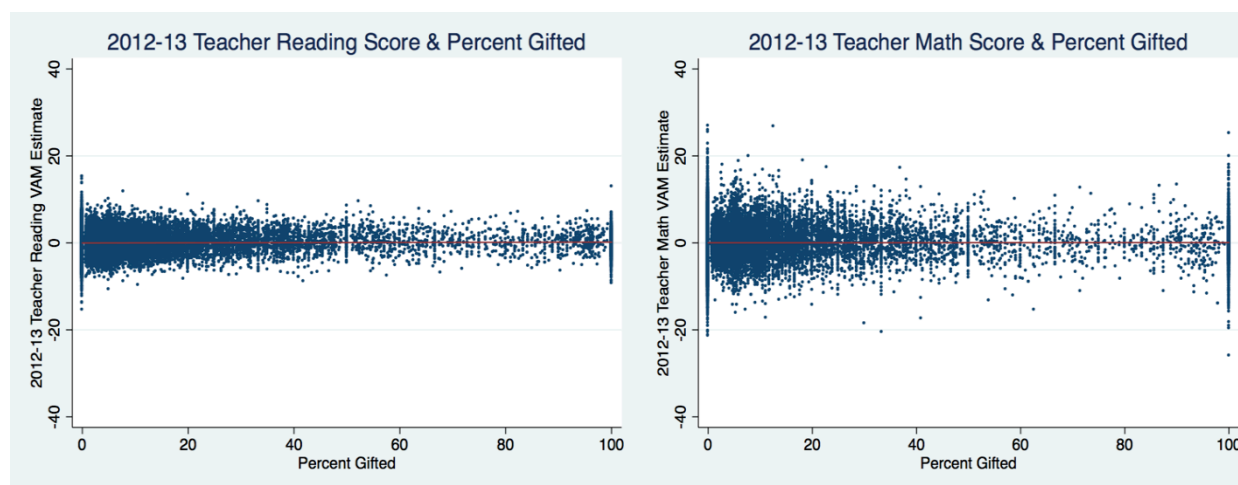
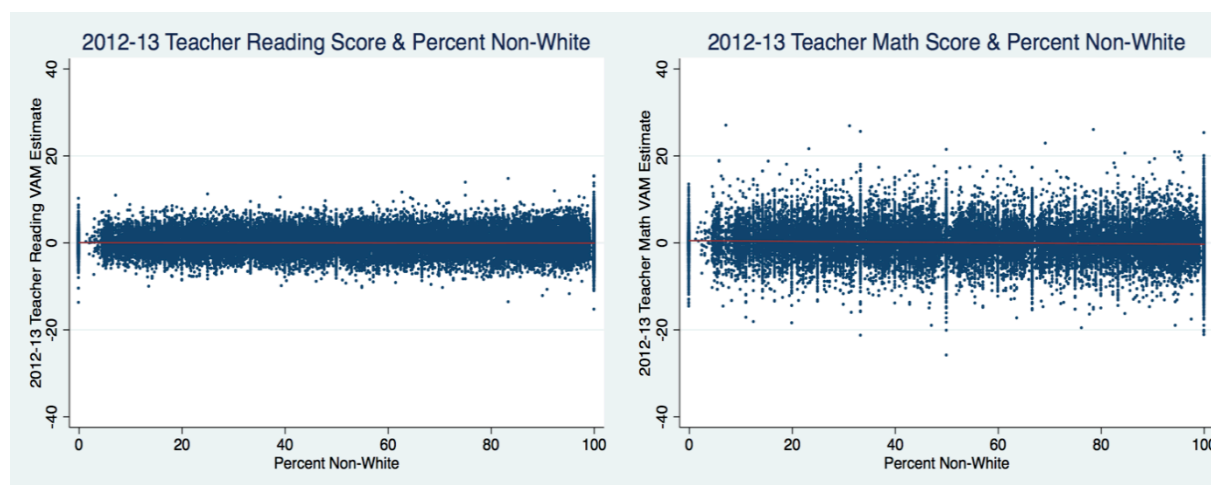


Figure 9: Teacher VAM Score and Share of Students in Class Who Are Non-White



Correlations between teacher VAM scores and other classroom characteristics are presented in Table 2. Most of the correlations between teacher VAM scores and classroom characteristics are close to zero. The correlation between teacher VAM scores and the share of students who come from low-income households is -0.10 in reading and -0.07 in math. While non-zero, these values are very small and do not suggest a strong systematic trend in the data.

Table 2: Teacher VAM Scores and Classroom Characteristics

	Reading	Math
Mean Prior Test Score	0.02	0.01
% Economically Disadvantaged	-0.10	-0.07
% Students with Disabilities	-0.02	-0.05
% English Language Learners	-0.00	-0.00
% Gifted	0.02	0.00
% Non-White	-0.01	-0.06

CONCLUSION

As described earlier, the State of Florida has committed to the use of a value-added model as one component of its statewide teacher evaluation system as required by the Student Success Act of 2011 [Senate Bill 736], as well as its Race to the Top plan.

With input from the SGIC, the state selected a value-added model to be used with statewide assessments. The SGIC and the state began their work with a broad survey of the types of value-added and student growth models currently in use around the country. The SGIC then narrowed its focus to a set of value-added models that it felt could best illustrate the nature of student, teacher, and school interactions and was flexible in its ability to describe teacher effects and school components. The SGIC and the state then used information from analysis of 120 different model variants to inform their decision on a statewide value-added model, reviewing data on model precision, explanatory power, and other information.

The selected statewide value-added model design represents the consensus of the SGIC about the factors that influence student learning that should be taken into consideration in order to produce a fair and accurate estimate of individual teacher and school effectiveness. It also represents the consensus of the group about how best to represent the relationships between students, teachers, and schools in a statistical model.

The results provided in this technical report summarize the aggregate results for the 2012–13 school year. Teacher- and student-level data are provided only to the state and individual school districts.

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APPENDIX A. SGIC MEMBER ROSTER

The names and affiliations of the SGIC members are as follows:

- **Sam Foerster, Chair**, Associate Superintendent, Putnam
- **Sandi Acosta**, Teacher (6th and 7th Science), Dade
- **Ronda Bourn**, Consortium Administrator
- **Anna Brown**, Representative for Superintendent MaryEllen Elia, Hillsborough
- **Joseph Camputaro**, Teacher (Elementary/Reading), Lee
- **Julia Carson**, Teacher (HS AP History, Geography), Volusia
- **Cathy Cavanaugh**, Postsecondary, UF
- **Doretha Wynn Edgecomb**, School Board, Hillsborough
- **Gisela Field**, District Administrator – Assessment, Dade
- **Stacey Frakes**, Teacher (3rd – 5th ESE), Madison
- **Arlene Ginn**, Teacher (7th Science), Orange
- **Stephanie Hall**, School-based Administrator (ES), Brevard
- **Lavetta B. Henderson**, Postsecondary, FAMU
- **Eric O. Hernandez**, Teacher (Honors Math), Dade
- **Linda J. Kearschner**, Parent, Pinellas
- **Latha Krishnaiyer**, State PTA
- **John le Tellier**, Teacher (Music), Marion
- **Nicole Marsala**, Teacher (8th History), Broward
- **Lisa Maxwell**, Local Union, Broward
- **Lawrence Morehouse**, Business
- **Jeff Murphy**, District Administrator - Student Services, Virtual School
- **Maria Cristina Noya**, School-based Administrator (HS), St. Lucie
- **Pam Stewart**, Assistant Superintendent, St. Johns
- **Lance J. Tomei**, Postsecondary, UCF
- **Gina Tovine**, District Administrator – HR, Levy
- **Lori Westphal**, Teacher (ESE), Lake
- **Tamar E. Woodhouse-Young**, Teacher (High School Math), Duval

APPENDIX B. FLORIDA COURSE CODES USED IN THE VALUE-ADDED MODEL

Table 1. Course Codes Used in the Mathematics Value-Added Model

Course Number	Course Name
1009365	AICE General Paper 2 AS Level
1200300	Pre-Algebra
1200310	Algebra I
1200315	Algebra 1 for Credit Recovery
1200320	Algebra I Honors
1200330	Algebra II
1200335	Algebra 2 for Credit Recovery
1200340	Algebra II Honors
1200370	Algebra Ia
1200375	Algebra 1-A for Credit Recovery
1200380	Algebra Ib
1200385	Algebra 1-B for Credit Recovery
1200390	International Baccalaureate Mid Yrs Program Algebra 1 Honors
1200395	International Baccalaureate Mid Yrs Program Algebra 2 Honors
1200400	Intensive Mathematics
1200410	Math for College Success
1200500	Advanced Algebra with Financial Applications
1200700	Math College Readiness
1201300	Math Analysis
1201310	Analysis of Functions
1201320	International Baccalaureate Math Analysis
1202300	Calculus
1202310	Advanced Placement Calculus AB
1202320	Advanced Placement Calculus BC
1202340	Pre-Calculus
1202352	AICE Mathematics 1
1202354	AICE Mathematics & Mechanics 1
1202356	AICE Mathematics & Mechanics 2
1202362	AICE Mathematics & Probability & Statistics 1
1202364	AICE Mathematics & Probability & Statistics 2
1202366	AICE Mathematics & Mechanics & Probability & Statistics 2
1202370	AICE Further Math
1202371	Pre-AICE Additional Math III
1202372	AICE Further Mathematics 2 A Level

1202375	International Baccalaureate Pre-Calculus
1202800	Calculus - International Baccalaureate
1202810	International Baccalaureate Calculus and Descriptive Statistics
1202820	International Baccalaureate Further Mathematics
1202830	International Baccalaureate Advanced Calculus
1204000	M/J Intensive Mathematics (MC)
1205010	M/J Mathematics 1
1205020	M/J Mathematics 1, Advanced
1205030	M/J Mathematics 1 Cambridge Secondary 1
1205040	M/J Mathematics 2
1205050	M/J Mathematics 2, Advanced
1205055	M/J Mathematics 2 Cambridge Secondary 1
1205060	M/J Mathematics 3 Cambridge Secondary 1
1205070	M/J Mathematics 3
1205080	M/J Mathematics 3, Advanced
1205090	M/J Mathematics IB
1205100	M/J Pre-algebra IB
1205370	Consumer Mathematics
1205400	Applied Mathematics I
1205410	Applied Mathematics II
1205420	Applied Mathematics III
1205500	Explorations in Mathematics I
1205510	Explorations in Mathematics II
1205540	Business Mathematics
1206300	Informal Geometry
1206310	Geometry
1206315	Geometry for Credit Recovery
1206320	Geometry Honors
1206330	Analytic Geometry
1206800	Analytic Geometry - International Baccalaureate
1206810	International Baccalaureate Mid Yrs Program Geometry Honors
1207310	Integrated Mathematics I
1207320	Integrated Mathematics II
1207330	Integrated Mathematics III
1208300	Liberal Arts Mathematics
1209700	Pre-AICE International Mathematics IGCSE Level
1209800	Mathematics Studies - International Baccalaureate
1209810	Pre-AICE Mathematics I
1209820	Pre-AICE Mathematics II
1209825	Pre-AICE Mathematics 3 IGCSE Level
1209830	International Baccalaureate Mathematics Higher Level

1210300	Probability & Statistics with
1210310	IB Statistics and Introductory Differential Calculus
1210320	Advanced Placement Statistics
1210330	AICE Mathematics Statistics
1211300	Trigonometry
1211800	Trigonometry International Baccalaureate
1220610	Linear Algebra
1220612	Abstract Algebra
1220910	Discrete Mathematics
1298310	Advanced Topics in Mathematics
2400000	Sixth Grade
5012020	Math Grade K
5012030	Math Grade 1
5012040	Math Grade 2
5012050	Math Grade 3
5012060	Math Grade 4
5012070	Math Grade 5
7712010	Mathematics K-5
7712050	Access Mathematics Grade 4
7712060	Access Mathematics Grade 5
7755010	Academics K-5
7755030	Academic Skills K-5
7755040	Advanced Academic Skills K-5
7755050	Developmental Skills K-5
7812010	Mathematics: 6-8
7812015	Access M/J Mathematics 1
7812020	Access M/J Mathematics 2
7812030	Access M/J Mathematics 3
7855010	Academics 6-8
7855030	Academic Skills 6-8
7855040	Advanced Academics 6-8
7855050	Developmental Skills 6-8
7912050	Mathematics 9-12
7912060	Access Informal Geometry
7912070	Access Liberal Arts Mathematics
7912080	Access Algebra 1A
7912090	Access Algebra 1B
7912340	Life Skills Math: 9-12

Table 2. Course Codes Used in the Reading Value-Added Model

Course Number	Course Name
500960	Reading and Writing Across the Curriculum
1000000	M/J Intensive Language Arts (MC)
1000010	M/J Intensive Reading (MC)
1000020	M/J Intensive Reading and Career Planning
1000400	Intensive Language Arts
1000410	Intensive Reading
1001010	M/J Language Arts 1
1001020	M/J Language Arts, 1 Adv.
1001025	M/J English 1 Cambridge Secondary 1
1001030	M/J Language Arts 1, International Baccalaureate
1001040	M/J Language Arts 2
1001050	M/J Language Arts 2, Adv
1001055	M/J English 2 Cambridge Secondary 1
1001060	M/J Language Arts 2, International Baccalaureate
1001070	M/J Language Arts 3
1001080	M/J Language Arts 3, Adv
1001085	M/J English 3 Cambridge Secondary 1
1001090	M/J Language Arts 3, International Baccalaureate
1001300	English Skills I
1001310	English I
1001315	English 1 for Credit Recovery
1001320	English Honors I
1001330	English Skills II
1001340	English II
1001345	English 2 for Credit Recovery
1001350	English Honors II
1001360	English Skills III
1001370	English III
1001375	English 3 for Credit Recovery
1001380	English Honors III
1001390	English Skills IV
1001400	English IV
1001402	English 4 for Credit Recovery
1001405	English 4: Florida College Prep
1001410	English Honors IV
1001420	Advanced Placement English Language and Composition
1001430	Advanced Placement English Literature and

	Composition
1001440	Business English I
1001450	Business English II
1001550	AICE English Language
1001555	AICE English Language and Literature AS Level
1001560	Pre-AICE English Language
1001800	English I Pre-International Baccalaureate
1001810	English II Pre-International Baccalaureate
1001820	English 3: International Baccalaureate
1001830	English 4: International Baccalaureate
1001840	IB Middle Years Program English I
1001845	IB Middle Years Program English II
1002000	M/J Language Arts 1 through ESOL
1002010	M/J Language Arts 2 through ESOL
1002020	M/J Language Arts 3 through ESOL
1002180	M/J Developmental Language Arts Through ESOL (MC)
1002181	M/J Developmental Language Arts Through ESOL (Reading)
1002300	English I through ESOL
1002305	English 1 Through ESOL for Credit Recovery
1002310	English II through ESOL
1002315	English 2 Through ESOL for Credit Recovery
1002320	English III through ESOL
1002325	English 3 Through ESOL for Credit Recovery
1002380	Developmental Language Arts Through ESOL
1002381	Developmental Language Arts ESOL (Reading)
1002520	English IV through ESOL
1002525	English 4 Through ESOL for Credit Recovery
1005370	AICE English Literature I
1005375	AICE English Literature II
1005380	Pre-AICE English Literature
1008010	M/J Reading 1
1008020	M/J Reading 1, Advanced
1008040	M/J Reading 2
1008050	M/J Reading 2, Advanced
1008070	M/J Reading 3
1008080	M/J Reading, Advanced
1008300	Reading I
1008310	Reading II
1008320	Advanced Reading
1008330	Reading III
1008350	Reading for College Success
1009365	AICE General Paper 2 AS Level

2400000	Sixth Grade
5010010	ESOL English for Speakers of Other Language-Elementary
5010020	Functional Basic Skills in Reading-Elementary
5010040	Language Arts-Elementary
5010045	Language Arts-Grade Four
5010046	Language Arts-Grade Five
5010050	Reading-Elementary
5010060	Integrated Language Arts-Elementary
7710010	Language Arts K-5
7710015	Access Language Arts - Grade 4
7710016	Access Language Arts - Grade 5
7710020	Reading: K-5
7755010	Academics K-5
7755030	Academic Skills K-5
7755040	Advanced Academic Skills K-5
7755050	Developmental Skills K-5
7810010	Language Arts 6-8
7810011	Access M/J Language Arts 1
7810012	Access M/J Language Arts 2
7810013	Access M/J Language Arts 3
7810020	Reading: 6-8
7855010	Academics: 6-8
7855030	Academic Skills: 6-8
7855040	Advanced Academics: 6-8 for Gifted Students
7855050	Developmental Skills: 6-8
7910100	Reading 9-12
7910110	English 9-12
7910111	Access English 1/2
7910112	Access English 3/4
7910400	Life Skills Reading: 9-12

APPENDIX C. FIXED EFFECT ESTIMATES

Table 1. Fixed Effects: Grade 4 Reading, 2012-13

Effect Name	Effect	Standard Error	p-Value
Constant Term	33.217	0.738	0.000
Language Impaired	-1.320	0.115	0.000
Deaf or Hard of Hearing	-0.573	0.552	0.300
Visually Impaired	-0.341	0.827	0.680
Emotional/Behavioral Disability	-2.089	0.299	0.000
Specific Learning Disability	-1.770	0.105	0.000
Dual-Sensory Impaired	0.317	4.215	0.940
Autism Spectrum Disorder	-0.529	0.266	0.047
Traumatic Brain Injured	-3.346	1.918	0.081
Other Health Impaired	-2.092	0.189	0.000
Intellectual Disability	-3.676	0.593	0.000
Enrolled in 2 or more Courses	0.424	0.124	0.001
Enrolled in 3 or more Courses	0.283	0.120	0.018
Enrolled in 4 or more Courses	0.733	0.354	0.039
Enrolled in 5 or more Courses	0.235	2.389	0.922
Homogeneity of Class 1 Prior Year Test Scores	0.002	0.005	0.669
Homogeneity of Class 2 Prior Year Test Scores	0.008	0.005	0.138
Missing Homogeneity of Class 2 Prior Year Test Scores	0.352	0.185	0.057
Homogeneity of Class 3 Prior Year Test Scores	0.006	0.007	0.359
Missing Homogeneity of Class 3 Prior Year Test Scores	0.444	0.176	0.012
Homogeneity of Class 4 Prior Year Test Scores	-0.028	0.010	0.004
Missing Homogeneity of Class 4 Prior Year Test Scores	-0.009	0.237	0.971
Homogeneity of Class 5 Prior Year Test Scores	0.003	0.014	0.820
Missing Homogeneity of Class 5 Prior Year Test Scores	0.286	0.356	0.422
Homogeneity of Class 6 Prior Year Test Scores	0.006	0.017	0.716
Missing Homogeneity of Class 6 Prior Year Test Scores	0.221	0.435	0.612
Number of Students in Class 1	0.014	0.004	0.001
Number of Students in Class 2	0.005	0.003	0.128
Number of Students in Class 3	0.007	0.003	0.021
Number of Students in Class 4	0.008	0.004	0.058
Number of Students in Class 5	0.003	0.007	0.651
Number of Students in Class 6	-0.004	0.010	0.720
Difference from Modal Age	-2.111	0.049	0.000
Mobility: Number of School Transfers	-0.488	0.106	0.000
Percent days attended	10.283	0.511	0.000
Gifted Student Indicator	3.464	0.107	0.000
In ELL for less than 2 years	4.130	0.155	0.000

In ELL between 2-4 years	-0.298	0.106	0.005
In ELL between 4-6 years	0.456	0.145	0.002
In ELL greater than 6 years	0.502	0.792	0.526
Achievement: Prior Year	0.828	0.002	0.000

Table 2. Fixed Effects: Grade 5 Reading, 2012-13

Effect Name	Effect	Standard Error	p-Value
Constant Term	17.219	0.650	0.000
Language Impaired	-2.019	0.104	0.000
Deaf or Hard of Hearing	-0.723	0.465	0.120
Visually Impaired	2.776	0.691	0.000
Emotional/Behavioral Disability	-0.991	0.240	0.000
Specific Learning Disability	-0.411	0.086	0.000
Dual-Sensory Impaired	-10.365	5.666	0.067
Autism Spectrum Disorder	-0.541	0.233	0.020
Traumatic Brain Injured	0.867	1.314	0.509
Other Health Impaired	-1.691	0.161	0.000
Intellectual Disability	-6.021	0.507	0.000
Enrolled in 2 or more Courses	0.085	0.104	0.415
Enrolled in 3 or more Courses	0.603	0.102	0.000
Enrolled in 4 or more Courses	0.719	0.307	0.019
Enrolled in 5 or more Courses	-3.502	1.442	0.015
Homogeneity of Class 1 Prior Year Test Scores	-0.025	0.004	0.000
Homogeneity of Class 2 Prior Year Test Scores	0.003	0.005	0.502
Missing Homogeneity of Class 2 Prior Year Test Scores	0.164	0.157	0.297
Homogeneity of Class 3 Prior Year Test Scores	0.018	0.006	0.003
Missing Homogeneity of Class 3 Prior Year Test Scores	0.342	0.157	0.030
Homogeneity of Class 4 Prior Year Test Scores	-0.006	0.009	0.477
Missing Homogeneity of Class 4 Prior Year Test Scores	0.139	0.208	0.504
Homogeneity of Class 5 Prior Year Test Scores	-0.021	0.013	0.114
Missing Homogeneity of Class 5 Prior Year Test Scores	-0.273	0.307	0.375
Homogeneity of Class 6 Prior Year Test Scores	0.008	0.017	0.648
Missing Homogeneity of Class 6 Prior Year Test Scores	0.886	0.395	0.025
Number of Students in Class 1	0.004	0.004	0.248
Number of Students in Class 2	0.004	0.003	0.154
Number of Students in Class 3	-0.005	0.003	0.140
Number of Students in Class 4	0.007	0.003	0.036
Number of Students in Class 5	0.010	0.004	0.019
Number of Students in Class 6	0.009	0.009	0.347
Difference from Modal Age	-1.202	0.041	0.000
Mobility: Number of School Transfers	-0.278	0.093	0.003
Percent days attended	4.252	0.427	0.000
Gifted Student Indicator	0.785	0.087	0.000
In ELL for less than 2 years	2.872	0.142	0.000
In ELL between 2-4 years	2.527	0.178	0.000

In ELL between 4-6 years	-0.017	0.092	0.853
In ELL greater than 6 years	-0.120	0.309	0.698
Missing value indicator for 0910 score	45.775	0.525	0.000
Achievement: Prior Year	0.717	0.003	0.000
Achievement: Two Years Prior	0.225	0.003	0.000

Table 3. Fixed Effects: Grade 6 Reading, 2012-13

Effect Name	Effect	Standard Error	p-Value
Constant Term	-0.646	1.100	0.557
Language Impaired	0.052	0.126	0.681
Deaf or Hard of Hearing	0.333	0.501	0.506
Visually Impaired	-0.813	1.006	0.419
Emotional/Behavioral Disability	-2.334	0.248	0.000
Specific Learning Disability	-0.649	0.090	0.000
Dual-Sensory Impaired	5.079	4.258	0.233
Autism Spectrum Disorder	1.807	0.284	0.000
Traumatic Brain Injured	-3.348	1.864	0.072
Other Health Impaired	-2.092	0.181	0.000
Intellectual Disability	-0.539	0.597	0.366
Enrolled in 2 or more Courses	2.710	0.139	0.000
Enrolled in 3 or more Courses	0.539	0.149	0.000
Enrolled in 4 or more Courses	-0.448	0.440	0.308
Enrolled in 5 or more Courses	-1.752	2.077	0.399
Homogeneity of Class 1 Prior Year Test Scores	-0.043	0.004	0.000
Homogeneity of Class 2 Prior Year Test Scores	0.005	0.004	0.228
Missing Homogeneity of Class 2 Prior Year Test Scores	0.360	0.188	0.055
Homogeneity of Class 3 Prior Year Test Scores	0.014	0.007	0.046
Missing Homogeneity of Class 3 Prior Year Test Scores	0.739	0.205	0.000
Homogeneity of Class 4 Prior Year Test Scores	0.037	0.011	0.001
Missing Homogeneity of Class 4 Prior Year Test Scores	1.165	0.305	0.000
Homogeneity of Class 5 Prior Year Test Scores	-0.011	0.022	0.617
Missing Homogeneity of Class 5 Prior Year Test Scores	-0.430	0.589	0.465
Homogeneity of Class 6 Prior Year Test Scores	-0.022	0.035	0.526
Missing Homogeneity of Class 6 Prior Year Test Scores	0.625	0.848	0.461
Number of Students in Class 1	-0.025	0.005	0.000
Number of Students in Class 2	-0.001	0.006	0.906
Number of Students in Class 3	0.035	0.008	0.000
Number of Students in Class 4	0.007	0.012	0.530
Number of Students in Class 5	0.028	0.022	0.198
Number of Students in Class 6	0.076	0.029	0.008
Difference from Modal Age	-1.642	0.042	0.000
Mobility: Number of School Transfers	-0.570	0.096	0.000
Percent days attended	9.684	0.440	0.000
Gifted Student Indicator	0.328	0.093	0.000
In ELL for less than 2 years	3.062	0.177	0.000
In ELL between 2-4 years	2.998	0.217	0.000

In ELL between 4-6 years	0.220	0.158	0.163
In ELL greater than 6 years	-0.310	0.208	0.135
missing value indicator for 0910 score	53.421	0.673	0.000
Achievement: Prior Year	0.730	0.004	0.000
Achievement: Two Years Prior	0.252	0.003	0.000

Table 4. Fixed Effects: Grade 7 Reading, 2012-13

Effect Name	Effect	Standard Error	p-Value
Constant Term	-11.670	1.029	0.000
Language Impaired	-0.885	0.129	0.000
Deaf or Hard of Hearing	-0.331	0.489	0.499
Visually Impaired	-3.914	0.922	0.000
Emotional/Behavioral Disability	-1.469	0.235	0.000
Specific Learning Disability	-0.761	0.085	0.000
Autism Spectrum Disorder	-8.701	4.871	0.074
Traumatic Brain Injured	-0.633	0.306	0.039
Other Health Impaired	-2.767	1.452	0.057
Intellectual Disability	-2.113	0.178	0.000
Enrolled in 2 or more Courses	0.178	0.490	0.716
Enrolled in 3 or more Courses	2.845	0.126	0.000
Enrolled in 4 or more Courses	0.484	0.165	0.003
Enrolled in 5 or more Courses	-1.514	0.482	0.002
Homogeneity of Class 1 Prior Year Test Scores	-1.162	3.443	0.736
Homogeneity of Class 2 Prior Year Test Scores	-0.038	0.004	0.000
Missing Homogeneity of Class 2 Prior Year Test Scores	0.024	0.005	0.000
Homogeneity of Class 3 Prior Year Test Scores	0.445	0.180	0.013
Missing Homogeneity of Class 3 Prior Year Test Scores	0.036	0.008	0.000
Homogeneity of Class 4 Prior Year Test Scores	0.455	0.216	0.035
Missing Homogeneity of Class 4 Prior Year Test Scores	0.024	0.012	0.054
Homogeneity of Class 5 Prior Year Test Scores	0.525	0.321	0.102
Missing Homogeneity of Class 5 Prior Year Test Scores	0.047	0.021	0.023
Homogeneity of Class 6 Prior Year Test Scores	0.429	0.539	0.426
Missing Homogeneity of Class 6 Prior Year Test Scores	0.083	0.033	0.012
Number of Students in Class 1	0.613	0.802	0.445
Number of Students in Class 2	-0.018	0.005	0.001
Number of Students in Class 3	0.002	0.006	0.704
Number of Students in Class 4	0.017	0.008	0.041
Number of Students in Class 5	0.008	0.012	0.518
Number of Students in Class 6	0.005	0.020	0.792
Difference from Modal Age	-0.013	0.025	0.615
Mobility: Number of School Transfers	-1.170	0.040	0.000
Percent days attended	-0.892	0.098	0.000
Gifted Student Indicator	11.870	0.400	0.000
In ELL for less than 2 years	-0.010	0.095	0.914
In ELL between 2-4 years	1.330	0.174	0.000
In ELL between 4-6 years	0.853	0.208	0.000

In ELL greater than 6 years	-1.054	0.271	0.000
Missing value indicator for 0910 score	-0.724	0.182	0.000
Achievement: Prior Year	48.632	0.688	0.000
Achievement: Two Years Prior	0.800	0.003	0.000
Achievement: Two Years Prior	0.225	0.003	0.000

Table 5. Fixed Effects: Grade 8 Reading, 2012-13

Effect Name	Effect	Standard Error	p-Value
Constant Term	1.988	1.053	0.059
Language Impaired	-0.955	0.131	0.000
Deaf or Hard of Hearing	0.255	0.449	0.570
Visually Impaired	-0.033	0.774	0.966
Emotional/Behavioral Disability	-2.036	0.204	0.000
Specific Learning Disability	-1.142	0.078	0.000
Autism Spectrum Disorder	-1.589	0.294	0.000
Traumatic Brain Injured	-5.461	1.443	0.000
Other Health Impaired	-2.476	0.164	0.000
Intellectual Disability	-3.186	0.451	0.000
Enrolled in 2 or more Courses	2.656	0.117	0.000
Enrolled in 3 or more Courses	0.221	0.154	0.151
Enrolled in 4 or more Courses	-0.188	0.429	0.661
Enrolled in 5 or more Courses	-4.400	2.295	0.055
Homogeneity of Class 1 Prior Year Test Scores	-0.037	0.003	0.000
Homogeneity of Class 2 Prior Year Test Scores	0.004	0.004	0.365
Missing Homogeneity of Class 2 Prior Year Test Scores	1.218	0.169	0.000
Homogeneity of Class 3 Prior Year Test Scores	0.026	0.007	0.000
Missing Homogeneity of Class 3 Prior Year Test Scores	0.362	0.200	0.070
Homogeneity of Class 4 Prior Year Test Scores	0.064	0.012	0.000
Missing Homogeneity of Class 4 Prior Year Test Scores	1.358	0.318	0.000
Homogeneity of Class 5 Prior Year Test Scores	-0.049	0.023	0.032
Missing Homogeneity of Class 5 Prior Year Test Scores	-1.849	0.603	0.002
Homogeneity of Class 6 Prior Year Test Scores	0.040	0.036	0.264
Missing Homogeneity of Class 6 Prior Year Test Scores	2.728	0.887	0.002
Number of Students in Class 1	-0.001	0.005	0.900
Number of Students in Class 2	0.035	0.005	0.000
Number of Students in Class 3	0.009	0.008	0.220
Number of Students in Class 4	-0.005	0.012	0.691
Number of Students in Class 5	-0.001	0.020	0.969
Number of Students in Class 6	0.095	0.029	0.001
Difference from Modal Age	-1.505	0.036	0.000
Mobility: Number of School Transfers	-0.530	0.085	0.000
Percent days attended	9.388	0.359	0.000
Gifted Student Indicator	0.763	0.098	0.000
In ELL for less than 2 years	0.858	0.166	0.000
In ELL between 2-4 years	2.574	0.191	0.000

In ELL between 4-6 years	1.396	0.236	0.000
In ELL greater than 6 years	-0.856	0.203	0.000
missing value indicator for 0910 score	64.319	0.709	0.000
Achievement: Prior Year	0.680	0.003	0.000
Achievement: Two Years Prior	0.291	0.003	0.000

Table 6. Fixed Effects: Grade 9 Reading, 2012-13

Effect Name	Effect	Standard Error	p-Value
Constant Term	2.943	1.085	0.007
Language Impaired	-0.264	0.134	0.049
Deaf or Hard of Hearing	1.545	0.453	0.001
Visually Impaired	1.009	0.785	0.199
Emotional/Behavioral Disability	-1.243	0.192	0.000
Specific Learning Disability	-0.434	0.074	0.000
Dual-Sensory Impaired	-6.359	5.283	0.229
Autism Spectrum Disorder	2.364	0.300	0.000
Traumatic Brain Injured	-6.791	1.151	0.000
Other Health Impaired	-1.351	0.162	0.000
Intellectual Disability	0.640	0.392	0.102
Enrolled in 2 or more Courses	2.736	0.120	0.000
Enrolled in 3 or more Courses	-0.094	0.194	0.630
Enrolled in 4 or more Courses	-0.705	0.528	0.182
Enrolled in 5 or more Courses	0.971	2.135	0.649
Homogeneity of Class 1 Prior Year Test Scores	-0.038	0.003	0.000
Homogeneity of Class 2 Prior Year Test Scores	0.009	0.004	0.042
Missing Homogeneity of Class 2 Prior Year Test Scores	0.726	0.165	0.000
Homogeneity of Class 3 Prior Year Test Scores	0.022	0.007	0.001
Missing Homogeneity of Class 3 Prior Year Test Scores	0.370	0.205	0.071
Homogeneity of Class 4 Prior Year Test Scores	0.038	0.012	0.002
Missing Homogeneity of Class 4 Prior Year Test Scores	1.645	0.329	0.000
Homogeneity of Class 5 Prior Year Test Scores	0.097	0.020	0.000
Missing Homogeneity of Class 5 Prior Year Test Scores	0.935	0.581	0.107
Homogeneity of Class 6 Prior Year Test Scores	0.026	0.031	0.400
Missing Homogeneity of Class 6 Prior Year Test Scores	1.287	0.887	0.147
Number of Students in Class 1	-0.004	0.004	0.402
Number of Students in Class 2	0.017	0.005	0.000
Number of Students in Class 3	-0.003	0.007	0.686
Number of Students in Class 4	0.048	0.011	0.000
Number of Students in Class 5	-0.033	0.018	0.075
Number of Students in Class 6	0.060	0.030	0.046
Difference from Modal Age	-2.050	0.035	0.000
Mobility: Number of School Transfers	-0.828	0.077	0.000
Percent days attended	9.415	0.344	0.000
Gifted Student Indicator	0.638	0.095	0.000
In ELL for less than 2 years	2.153	0.164	0.000
In ELL between 2-4 years	3.803	0.196	0.000

In ELL between 4-6 years	0.765	0.226	0.001
In ELL greater than 6 years	0.147	0.236	0.533
missing value indicator for 0910 score	67.840	0.652	0.000
Achievement: Prior Year	0.650	0.003	0.000
Achievement: Two Years Prior	0.300	0.003	0.000

Table 7. Fixed Effects: Grade 10 Reading, 2012-13

Effect Name	Effect	Standard Error	p-Value
Constant Term	1.731	1.100	0.116
Language Impaired	0.490	0.159	0.002
Deaf or Hard of Hearing	1.526	0.466	0.001
Visually Impaired	-0.399	0.830	0.630
Emotional/Behavioral Disability	-1.397	0.211	0.000
Specific Learning Disability	-0.283	0.079	0.000
Dual-Sensory Impaired	9.788	4.466	0.028
Autism Spectrum Disorder	0.441	0.331	0.183
Traumatic Brain Injured	0.002	1.184	0.999
Other Health Impaired	-0.656	0.173	0.000
Intellectual Disability	2.443	0.420	0.000
Enrolled in 2 or more Courses	4.116	0.125	0.000
Enrolled in 3 or more Courses	0.275	0.180	0.127
Enrolled in 4 or more Courses	1.539	0.580	0.008
Enrolled in 5 or more Courses	7.147	2.696	0.008
Homogeneity of Class 1 Prior Year Test Scores	-0.026	0.004	0.000
Homogeneity of Class 2 Prior Year Test Scores	0.028	0.004	0.000
Missing Homogeneity of Class 2 Prior Year Test Scores	0.811	0.167	0.000
Homogeneity of Class 3 Prior Year Test Scores	0.038	0.007	0.000
Missing Homogeneity of Class 3 Prior Year Test Scores	0.848	0.206	0.000
Homogeneity of Class 4 Prior Year Test Scores	0.022	0.012	0.062
Missing Homogeneity of Class 4 Prior Year Test Scores	0.819	0.320	0.010
Homogeneity of Class 5 Prior Year Test Scores	0.082	0.021	0.000
Missing Homogeneity of Class 5 Prior Year Test Scores	1.922	0.582	0.001
Homogeneity of Class 6 Prior Year Test Scores	-0.026	0.033	0.431
Missing Homogeneity of Class 6 Prior Year Test Scores	-1.652	0.903	0.067
Number of Students in Class 1	-0.007	0.004	0.109
Number of Students in Class 2	-0.004	0.005	0.387
Number of Students in Class 3	0.016	0.007	0.033
Number of Students in Class 4	0.018	0.012	0.117
Number of Students in Class 5	0.057	0.021	0.007
Number of Students in Class 6	-0.042	0.031	0.183
Difference from Modal Age	-1.919	0.036	0.000
Mobility: Number of School Transfers	-0.987	0.087	0.000
Percent days attended	11.049	0.340	0.000
Gifted Student Indicator	0.605	0.097	0.000
In ELL for less than 2 years	2.630	0.177	0.000
In ELL between 2-4 years	2.749	0.205	0.000

In ELL between 4-6 years	0.912	0.237	0.000
In ELL greater than 6 years	1.290	0.258	0.000
Missing value indicator for 0910 score	53.825	0.649	0.000
Achievement: Prior Year	0.733	0.003	0.000
Achievement: Two Years Prior	0.227	0.003	0.000

Table 8. Fixed Effects: Grade 4 Mathematics, 2012-13

Effect Name	Effect	Standard Error	p-Value
Constant Term	25.295	1.789	0.000
Language Impaired	-0.482	0.108	0.000
Deaf or Hard of Hearing	0.081	0.523	0.877
Visually Impaired	-1.372	0.779	0.078
Emotional/Behavioral Disability	-2.871	0.310	0.000
Specific Learning Disability	-1.588	0.099	0.000
Dual-Sensory Impaired	2.354	3.899	0.546
Autism Spectrum Disorder	-0.395	0.254	0.120
Traumatic Brain Injured	-6.450	1.802	0.000
Other Health Impaired	-2.009	0.179	0.000
Intellectual Disability	-4.995	0.576	0.000
Enrolled in 2 or more Courses	0.709	0.211	0.001
Enrolled in 3 or more Courses	4.950	2.718	0.069
Homogeneity of Class 1 Prior Year Test Scores	-0.004	0.005	0.471
Homogeneity of Class 2 Prior Year Test Scores	0.001	0.008	0.888
Missing Homogeneity of Class 2 Prior Year Test Scores	0.537	0.203	0.008
Homogeneity of Class 3 Prior Year Test Scores	-0.040	0.018	0.024
Missing Homogeneity of Class 3 Prior Year Test Scores	0.208	0.435	0.634
Homogeneity of Class 4 Prior Year Test Scores	0.008	0.033	0.809
Missing Homogeneity of Class 4 Prior Year Test Scores	1.319	0.795	0.097
Homogeneity of Class 5 Prior Year Test Scores	-0.062	0.054	0.256
Missing Homogeneity of Class 5 Prior Year Test Scores	-1.788	1.455	0.219
Homogeneity of Class 6 Prior Year Test Scores	-0.078	0.070	0.268
Missing Homogeneity of Class 6 Prior Year Test Scores	1.125	1.969	0.568
Number of Students in Class 1	0.059	0.005	0.000
Number of Students in Class 2	0.000	0.005	0.942
Number of Students in Class 3	0.028	0.009	0.001
Number of Students in Class 4	0.011	0.014	0.447
Number of Students in Class 5	0.048	0.040	0.235
Number of Students in Class 6	-0.019	0.065	0.768
Difference from Modal Age	-1.905	0.045	0.000
Mobility: Number of School Transfers	-0.375	0.099	0.000
Percent days attended	18.440	0.475	0.000
Gifted Student Indicator	1.824	0.127	0.000
In ELL for less than 2 years	2.801	0.137	0.000
In ELL between 2-4 years	-0.238	0.092	0.009
In ELL between 4-6 years	-0.637	0.131	0.000
In ELL greater than 6 years	2.039	0.739	0.006
Achievement: Prior Year	0.839	0.001	0.000

Table 9. Fixed Effects: Grade 5 Mathematics, 2012-13

Effect Name	Effect	Standard Error	p-Value
Constant Term	27.273	1.424	0.000
Language Impaired	-0.986	0.109	0.000
Deaf or Hard of Hearing	0.242	0.490	0.622
Visually Impaired	-1.033	0.717	0.149
Emotional/Behavioral Disability	-0.974	0.271	0.000
Specific Learning Disability	-1.002	0.090	0.000
Dual-Sensory Impaired	8.117	5.493	0.139
Autism Spectrum Disorder	0.594	0.246	0.016
Traumatic Brain Injured	1.491	1.358	0.272
Other Health Impaired	-1.650	0.170	0.000
Intellectual Disability	-4.353	0.536	0.000
Enrolled in 2 or more Courses	-0.009	0.202	0.963
Enrolled in 3 or more Courses	-6.095	2.457	0.013
Enrolled in 4 or more Courses	-3.609	7.752	0.642
Homogeneity of Class 1 Prior Year Test Scores	-0.038	0.004	0.000
Homogeneity of Class 2 Prior Year Test Scores	-0.032	0.007	0.000
Missing Homogeneity of Class 2 Prior Year Test Scores	-0.052	0.180	0.773
Homogeneity of Class 3 Prior Year Test Scores	-0.008	0.014	0.576
Missing Homogeneity of Class 3 Prior Year Test Scores	0.698	0.355	0.049
Homogeneity of Class 4 Prior Year Test Scores	-0.032	0.026	0.207
Missing Homogeneity of Class 4 Prior Year Test Scores	-0.410	0.612	0.503
Homogeneity of Class 5 Prior Year Test Scores	-0.046	0.046	0.325
Missing Homogeneity of Class 5 Prior Year Test Scores	-0.717	1.156	0.535
Homogeneity of Class 6 Prior Year Test Scores	0.030	0.066	0.647
Missing Homogeneity of Class 6 Prior Year Test Scores	-2.195	1.538	0.153
Number of Students in Class 1	0.017	0.004	0.000
Number of Students in Class 2	0.008	0.004	0.054
Number of Students in Class 3	0.010	0.007	0.179
Number of Students in Class 4	0.004	0.011	0.720
Number of Students in Class 5	-0.020	0.026	0.447
Number of Students in Class 6	-0.067	0.043	0.118
Difference from Modal Age	-2.201	0.042	0.000
Mobility: Number of School Transfers	-0.547	0.097	0.000
Percent days attended	12.007	0.448	0.000
Gifted Student Indicator	0.415	0.111	0.000
In ELL for less than 2 years	0.828	0.138	0.000
In ELL between 2-4 years	1.049	0.181	0.000
In ELL between 4-6 years	-0.265	0.091	0.004

In ELL greater than 6 years	0.340	0.319	0.286
Missing value indicator for 0910 score	52.803	0.478	0.000
Achievement: Prior Year	0.622	0.002	0.000
Achievement: Two Years Prior	0.257	0.002	0.000

Table 10. Fixed Effects: Grade 6 Mathematics, 2012-13

Effect Name	Effect	Standard Error	p-Value
Constant Term	2.371	2.384	0.320
Language Impaired	-1.458	0.120	0.000
Deaf or Hard of Hearing	0.205	0.466	0.661
Visually Impaired	-0.195	0.957	0.839
Emotional/Behavioral Disability	0.016	0.249	0.950
Specific Learning Disability	-1.419	0.086	0.000
Dual-Sensory Impaired	-3.778	3.773	0.317
Autism Spectrum Disorder	0.855	0.270	0.002
Traumatic Brain Injured	-3.396	1.810	0.061
Other Health Impaired	-2.210	0.176	0.000
Intellectual Disability	-5.318	0.623	0.000
Enrolled in 2 or more Courses	3.528	0.110	0.000
Enrolled in 3 or more Courses	0.429	0.460	0.351
Enrolled in 4 or more Courses	-3.248	3.027	0.283
Homogeneity of Class 1 Prior Year Test Scores	-0.031	0.004	0.000
Homogeneity of Class 2 Prior Year Test Scores	0.034	0.006	0.000
Missing Homogeneity of Class 2 Prior Year Test Scores	1.542	0.180	0.000
Homogeneity of Class 3 Prior Year Test Scores	0.017	0.013	0.170
Missing Homogeneity of Class 3 Prior Year Test Scores	0.514	0.331	0.120
Homogeneity of Class 4 Prior Year Test Scores	-0.016	0.023	0.486
Missing Homogeneity of Class 4 Prior Year Test Scores	0.537	0.572	0.348
Homogeneity of Class 5 Prior Year Test Scores	0.039	0.048	0.414
Missing Homogeneity of Class 5 Prior Year Test Scores	2.620	1.387	0.059
Homogeneity of Class 6 Prior Year Test Scores	-0.103	0.081	0.206
Missing Homogeneity of Class 6 Prior Year Test Scores	1.149	2.260	0.611
Number of Students in Class 1	-0.012	0.005	0.011
Number of Students in Class 2	0.026	0.006	0.000
Number of Students in Class 3	0.004	0.010	0.647
Number of Students in Class 4	0.017	0.017	0.301
Number of Students in Class 5	0.091	0.037	0.013
Number of Students in Class 6	0.156	0.089	0.079
Difference from Modal Age	-1.192	0.040	0.000
Mobility: Number of School Transfers	-0.498	0.090	0.000
Percent days attended	8.783	0.410	0.000
Gifted Student Indicator	-0.089	0.081	0.271
In ELL for less than 2 years	1.663	0.149	0.000
In ELL between 2-4 years	0.352	0.194	0.069

In ELL between 4-6 years	-0.918	0.142	0.000
In ELL greater than 6 years	-1.163	0.191	0.000
Missing value indicator for 0910 score	35.086	0.630	0.000
Achievement: Prior Year	0.793	0.003	0.000
Achievement: Two Years Prior	0.160	0.003	0.000

Table 11. Fixed Effects: Grade 7 Mathematics, 2012-13

Effect Name	Effect	Standard Error	p-Value
Constant Term	-8.035	3.383	0.018
Language Impaired	-1.064	0.199	0.000
Deaf or Hard of Hearing	0.725	0.730	0.321
Visually Impaired	-1.486	1.360	0.275
Emotional/Behavioral Disability	-0.165	0.361	0.647
Specific Learning Disability	0.401	0.128	0.002
Dual-Sensory Impaired	5.850	8.975	0.515
Autism Spectrum Disorder	0.864	0.462	0.061
Traumatic Brain Injured	-2.593	2.285	0.257
Other Health Impaired	-0.384	0.276	0.164
Intellectual Disability	-1.181	0.952	0.215
Enrolled in 2 or more Courses	3.987	0.152	0.000
Enrolled in 3 or more Courses	0.765	0.506	0.131
Enrolled in 4 or more Courses	1.993	3.465	0.565
Homogeneity of Class 1 Prior Year Test Scores	0.011	0.005	0.047
Homogeneity of Class 2 Prior Year Test Scores	0.039	0.009	0.000
Missing Homogeneity of Class 2 Prior Year Test Scores	1.110	0.257	0.000
Homogeneity of Class 3 Prior Year Test Scores	0.019	0.018	0.277
Missing Homogeneity of Class 3 Prior Year Test Scores	0.943	0.500	0.060
Homogeneity of Class 4 Prior Year Test Scores	0.018	0.029	0.535
Missing Homogeneity of Class 4 Prior Year Test Scores	-0.299	0.801	0.708
Homogeneity of Class 5 Prior Year Test Scores	-0.228	0.075	0.002
Missing Homogeneity of Class 5 Prior Year Test Scores	-1.636	1.979	0.408
Homogeneity of Class 6 Prior Year Test Scores	0.073	0.106	0.491
Missing Homogeneity of Class 6 Prior Year Test Scores	3.391	3.057	0.267
Number of Students in Class 1	-0.018	0.007	0.009
Number of Students in Class 2	0.012	0.009	0.174
Number of Students in Class 3	0.015	0.017	0.355
Number of Students in Class 4	0.001	0.026	0.984
Number of Students in Class 5	0.035	0.060	0.563
Number of Students in Class 6	0.133	0.097	0.173
Difference from Modal Age	-0.826	0.059	0.000
Mobility: Number of School Transfers	-0.876	0.144	0.000
Percent days attended	9.378	0.587	0.000
Gifted Student Indicator	0.286	0.122	0.019
In ELL for less than 2 years	2.093	0.244	0.000
In ELL between 2-4 years	1.205	0.300	0.000

In ELL between 4-6 years	-0.613	0.412	0.137
In ELL greater than 6 years	-0.612	0.265	0.021
Missing value indicator for 0910 score	43.203	1.269	0.000
Achievement: Prior Year	0.832	0.006	0.000
Achievement: Two Years Prior	0.189	0.006	0.000

Table 12. Fixed Effects: Grade 8 Mathematics, 2012-13

Effect Name	Effect	Standard Error	p-Value
Constant Term	2.770	3.368	0.411
Language Impaired	-0.077	0.185	0.677
Deaf or Hard of Hearing	-0.139	0.600	0.817
Visually Impaired	-0.465	1.073	0.664
Emotional/Behavioral Disability	-0.438	0.287	0.127
Specific Learning Disability	0.189	0.108	0.081
Autism Spectrum Disorder	1.329	0.407	0.001
Traumatic Brain Injured	0.885	2.136	0.679
Other Health Impaired	-0.940	0.234	0.000
Intellectual Disability	-2.516	0.729	0.001
Enrolled in 2 or more Courses	3.013	0.130	0.000
Enrolled in 3 or more Courses	-0.408	0.387	0.291
Enrolled in 4 or more Courses	1.248	2.181	0.567
Homogeneity of Class 1 Prior Year Test Scores	0.032	0.005	0.000
Homogeneity of Class 2 Prior Year Test Scores	0.018	0.008	0.018
Missing Homogeneity of Class 2 Prior Year Test Scores	1.988	0.224	0.000
Homogeneity of Class 3 Prior Year Test Scores	0.001	0.015	0.922
Missing Homogeneity of Class 3 Prior Year Test Scores	0.180	0.384	0.639
Homogeneity of Class 4 Prior Year Test Scores	0.016	0.028	0.568
Missing Homogeneity of Class 4 Prior Year Test Scores	0.500	0.711	0.482
Homogeneity of Class 5 Prior Year Test Scores	-0.045	0.071	0.520
Missing Homogeneity of Class 5 Prior Year Test Scores	-2.541	1.765	0.150
Homogeneity of Class 6 Prior Year Test Scores	-0.082	0.119	0.493
Missing Homogeneity of Class 6 Prior Year Test Scores	-1.430	3.405	0.674
Number of Students in Class 1	0.011	0.006	0.052
Number of Students in Class 2	0.075	0.008	0.000
Number of Students in Class 3	0.009	0.013	0.479
Number of Students in Class 4	0.004	0.025	0.857
Number of Students in Class 5	-0.078	0.058	0.184
Number of Students in Class 6	-0.017	0.118	0.885
Difference from Modal Age	-0.920	0.050	0.000
Mobility: Number of School Transfers	-0.774	0.115	0.000
Percent days attended	12.868	0.493	0.000
Gifted Student Indicator	-0.207	0.128	0.106
In ELL for less than 2 years	1.284	0.208	0.000
In ELL between 2-4 years	1.307	0.254	0.000
In ELL between 4-6 years	0.653	0.326	0.045

In ELL greater than 6 years	-0.264	0.276	0.339
Missing value indicator for 0910 score	40.669	1.234	0.000
Achievement: Prior Year	0.792	0.006	0.000
Achievement: Two Years Prior	0.179	0.006	0.000

APPENDIX D. TEACHER VALUE-ADDED SCORES BY DISTRICT

**Table 1. Mean and Standard Deviation of Teacher Value-Added Scores by District:
Grade 4, 2012-13**

	Math			Read		
	Mean	Std. Dev.	N	Mean	Std. Dev.	N
ALACHUA	-0.45	5.83	145	-0.44	2.88	189
BAKER	-0.76	6.95	13	-1.50	2.63	13
BAY	0.21	5.13	122	-0.39	2.41	130
BRADFORD	1.04	3.11	11	-0.64	2.98	11
BREVARD	-0.40	4.92	377	0.54	2.22	391
BROWARD	0.32	5.68	946	0.00	2.74	1,043
CALHOUN	-1.33	6.41	5	-1.65	2.55	9
CHARLOTTE	-0.59	3.76	67	-0.43	2.51	70
CITRUS	-0.63	5.30	77	-0.23	2.42	89
CLAY	0.08	5.17	160	-0.04	2.43	173
COLLIER	0.86	5.06	165	-0.32	2.23	256
COLUMBIA	1.01	5.46	50	0.18	2.38	54
DADE	0.25	6.08	1,236	0.35	2.91	1,458
DEAF/BLIND	-3.85	2.37	4	0.74	2.12	4
DESOTO	-2.31	5.18	22	-0.76	3.28	23
DIXIE	0.18	7.97	6	-0.09	2.33	10
DUVAL	0.32	5.32	474	-0.08	2.66	509
ESCAMBIA	0.87	6.00	184	0.24	2.47	196
FAMU LAB SCH	-0.53	10.39	2	1.48	2.62	2
FAU LAB SCH	2.13	2.65	10	-0.31	1.85	11
FL VIRTUAL	-4.60	2.45	9	0.54	2.20	9
FLAGLER	-0.89	4.85	43	0.53	2.23	44
FRANKLIN	6.28	6.43	7	1.49	2.90	7
FSU LAB SCH	-0.52	4.28	11	1.25	2.69	14
GADSDEN	1.87	6.27	25	0.60	3.18	32
GILCHRIST	1.12	7.67	11	1.21	1.39	12
GLADES	-0.70	6.72	9	-0.29	2.77	9
GULF	0.97	7.35	10	-0.90	2.60	11
HAMILTON	-1.32	2.92	3	-0.20	2.87	6
HARDEE	1.98	4.65	21	-1.06	2.81	29
HENDRY	2.94	5.79	32	-0.14	1.92	33
HERNANDO	-0.86	5.31	76	-0.40	2.59	84
HIGHLANDS	1.25	4.61	56	-0.76	2.53	58

HILLSBOROUGH	0.25	4.97	785	-0.06	2.40	784
HOLMES	-1.06	7.09	13	-0.05	2.39	15
INDIAN RIVER	-1.60	4.76	87	-0.96	2.60	89
JACKSON	2.41	5.72	21	0.74	2.06	36
JEFFERSON	2.50		1	0.10	2.34	3
LAFAYETTE	-0.25	6.14	5	-0.98	3.03	8
LAKE	-0.09	5.08	156	-0.38	2.75	187
LEE	-1.17	5.05	380	-0.00	2.71	407
LEON	0.30	4.68	149	0.97	2.48	154
LEVY	0.28	5.10	22	-1.41	1.80	25
LIBERTY	-2.22	11.07	2	-2.67	0.55	4
MADISON	-4.57	4.99	11	0.60	2.76	10
MANATEE	0.66	5.46	241	-0.36	2.52	273
MARION	0.31	5.60	191	-0.35	2.47	212
MARTIN	-0.41	5.42	75	-1.68	2.16	87
MONROE	2.39	5.51	32	-0.83	2.18	35
NASSAU	2.34	5.64	49	0.41	2.69	52
OKALOOSA	0.18	4.55	93	-0.12	2.56	117
OKEECHOBEE	1.20	5.26	37	-0.30	3.20	36
ORANGE	0.13	5.11	819	0.44	2.51	855
OSCEOLA	-0.48	5.73	217	0.05	2.15	260
PALM BEACH	1.02	5.63	547	0.61	2.44	812
PASCO	-0.25	5.19	352	-0.36	2.35	371
PINELLAS	-0.44	4.73	458	0.13	2.43	555
POLK	-0.82	5.34	480	-0.42	2.46	502
PUTNAM	1.44	5.17	45	-0.27	2.58	55
SANTA ROSA	0.97	5.76	103	0.30	2.22	117
SARASOTA	-0.17	4.82	185	-0.05	2.89	213
SEMINOLE	0.35	4.60	275	0.30	2.36	302
ST. JOHNS	0.74	4.77	141	0.76	2.75	148
ST. LUCIE	-1.67	5.20	178	-1.11	2.52	189
SUMTER	1.35	4.34	26	-0.09	2.15	32
SUWANNEE	-0.83	4.94	22	-1.47	2.19	23
TAYLOR	-2.50	3.17	9	-0.79	2.39	9
UF LAB SCH	3.34	4.43	3	-2.14	1.39	6
UNION	3.88	8.25	13	1.38	2.32	11
VOLUSIA	0.52	5.74	303	-0.40	2.24	367
WAKULLA	0.30	5.11	21	0.11	2.55	23
WALTON	0.72	5.23	33	-0.29	2.05	35
WASHINGTON	0.87	7.20	14	-0.71	2.63	14
State Average	0.11	5.40	10,983	0.03	2.58	12,422

**Table 2. Mean and Standard Deviation of Teacher Value-Added Scores by District:
Grade 5, 2012-13**

	Math			Read		
	Mean	Std. Dev.	N	Mean	Std. Dev.	N
ALACHUA	0.15	3.45	128	0.24	2.18	161
BAKER	-2.33	4.17	12	-1.19	2.25	12
BAY	1.14	4.13	97	0.89	2.16	108
BRADFORD	0.67	5.71	10	0.02	2.81	13
BREVARD	-0.08	3.59	358	-0.15	1.82	396
BROWARD	-0.25	3.67	870	-0.28	2.21	966
CALHOUN	-0.07	4.21	8	0.71	1.85	13
CHARLOTTE	0.91	4.43	60	0.12	2.35	65
CITRUS	0.59	3.58	61	-0.51	1.98	73
CLAY	0.49	3.50	127	-0.25	2.11	151
COLLIER	1.46	3.96	149	-0.41	2.06	251
COLUMBIA	-1.07	4.60	46	-0.03	2.25	52
DADE	-0.44	4.54	1,113	0.08	2.35	1,381
DEAF/BLIND	-2.88	2.75	5	-1.23	1.42	5
DESOTO	-1.70	4.10	22	-0.90	1.93	22
DIXIE	-2.03	7.22	6	0.87	1.72	8
DUVAL	-0.62	3.99	438	0.11	1.79	493
ESCAMBIA	-0.00	4.26	168	-0.57	2.11	197
FAMU LAB SCH	-2.23		1	-3.51	1.14	2
FAU LAB SCH	1.63	2.95	11	0.53	1.88	11
FL VIRTUAL	-2.64	2.81	12	0.06	1.09	9
FLAGLER	-0.02	3.46	39	0.24	1.77	39
FRANKLIN	2.75	2.93	3	0.94	1.37	3
FSU LAB SCH	-1.85	2.90	9	0.12	1.21	10
GADSDEN	-1.43	4.05	24	1.11	2.22	25
GILCHRIST	0.51	3.55	14	-0.02	2.02	14
GLADES	-0.79	5.31	7	-1.93	2.74	10
GULF	-2.12	4.74	7	-1.78	1.56	9
HAMILTON	-3.46	4.08	5	-0.24	1.36	9
HARDEE	-1.09	3.79	22	-0.46	1.76	29
HENDRY	1.61	2.89	34	0.39	1.27	36
HERNANDO	0.49	3.60	78	0.08	1.88	85
HIGHLANDS	-1.72	3.30	51	0.24	2.11	55
HILLSBOROUGH	1.11	3.53	766	-0.45	2.03	758
HOLMES	-1.02	3.97	12	0.50	2.11	18

INDIAN RIVER	0.24	3.42	84	0.10	2.17	86
JACKSON	-0.31	3.10	18	0.65	1.90	30
JEFFERSON	-5.31	1.28	4	0.03	2.06	7
LAFAYETTE	3.93	2.52	4	0.67	1.67	7
LAKE	-0.44	3.72	144	-0.21	2.17	179
LEE	-0.06	3.97	362	-0.28	2.16	377
LEON	0.06	3.03	134	0.41	2.03	136
LEVY	-0.84	3.04	25	0.34	2.27	30
LIBERTY	-0.85	4.73	2	2.59	2.73	3
MADISON	0.20	3.20	8	-0.42	1.54	10
MANATEE	1.09	3.91	207	-0.03	1.86	249
MARION	-0.57	3.55	181	-0.24	2.25	208
MARTIN	-0.16	3.94	78	-0.09	1.87	88
MONROE	-0.39	3.85	31	-0.13	2.03	32
NASSAU	-0.49	5.05	39	0.27	2.45	42
OKALOOSA	0.26	3.61	76	0.09	1.85	105
OKEECHOBEE	-2.21	3.28	26	-0.51	2.36	33
ORANGE	0.02	3.75	739	0.21	2.05	813
OSCEOLA	-0.06	3.84	216	-0.02	1.88	266
PALM BEACH	0.20	3.96	476	0.47	2.07	757
PASCO	1.66	3.43	346	0.31	1.77	360
PINELLAS	0.30	4.16	464	-0.14	2.03	558
POLK	-0.15	3.70	447	0.18	2.05	472
PUTNAM	-2.17	3.35	38	-0.55	1.76	50
SANTA ROSA	0.46	3.98	103	0.22	2.29	118
SARASOTA	1.01	4.37	146	0.46	2.15	180
SEMINOLE	-0.23	3.57	271	0.25	1.89	298
ST. JOHNS	0.30	3.55	126	0.54	2.09	138
ST. LUCIE	-0.98	3.73	166	-0.51	1.87	192
SUMTER	0.45	3.25	22	0.07	2.12	25
SUWANNEE	0.75	2.64	19	-0.28	1.48	19
TAYLOR	-0.93	1.57	5	-0.78	1.85	9
UF LAB SCH	-1.44	2.92	3	-0.77	0.88	6
UNION	-2.24	3.28	9	-1.58	1.29	8
VOLUSIA	0.08	3.49	305	0.12	1.90	354
WAKULLA	-0.27	3.61	23	-0.02	1.83	24
WALTON	-0.29	3.09	25	0.73	1.96	31
WASHINGTON	-3.34	3.60	8	-1.08	1.31	12
State Average	0.07	3.90	10,153	0.00	2.09	11,801

**Table 3. Mean and Standard Deviation of Teacher Value-Added Scores by District:
Grade 6, 2012-13**

	Math			Read		
	Mean	Std. Dev.	N	Mean	Std. Dev.	N
ALACHUA	-0.28	3.03	58	-0.44	2.07	79
BAKER	4.24	7.66	11	0.53	2.02	12
BAY	-0.20	3.14	51	-0.25	2.46	65
BRADFORD	0.16	3.93	4	0.43	4.04	7
BREVARD	3.01	3.12	321	1.15	1.92	392
BROWARD	-0.58	3.06	322	-0.16	2.30	553
CALHOUN	0.93	2.58	10	0.46	2.85	11
CHARLOTTE	-2.11	3.29	19	-1.26	2.42	25
CITRUS	-1.40	2.18	26	-0.77	2.19	43
CLAY	2.30	3.24	101	1.26	2.08	124
COLLIER	1.22	3.24	85	0.33	2.09	125
COLUMBIA	-1.55	2.73	14	1.09	2.00	16
DADE	-0.88	3.56	722	0.03	2.55	1,026
DEAF/BLIND	-1.56	1.92	4	0.50	3.27	4
DESOTO	-1.38	2.97	9	-1.69	3.28	10
DIXIE	0.28	1.42	6	2.63	1.67	7
DUVAL	-1.32	2.88	249	-0.12	2.48	283
ESCAMBIA	-1.58	2.77	60	-1.16	2.49	90
FAMU LAB SCH	-3.28		1	-2.23		1
FAU LAB SCH	1.91	1.03	5	2.49	1.47	6
FL VIRTUAL	-0.47	3.31	9	2.45	1.16	7
FLAGLER	3.51	3.31	35	0.95	2.43	41
FRANKLIN	-0.25	2.07	5	-0.04	2.56	6
FSU LAB SCH	0.42	3.45	3	-1.75	4.19	4
GADSDEN	-2.69	2.77	15	-1.00	2.67	27
GILCHRIST	0.48	2.65	4	0.62	2.27	6
GLADES	2.40	2.71	7	0.69	1.21	7
GULF	2.59	3.50	9	0.78	1.37	9
HAMILTON	3.70	2.51	6	0.21	1.64	9
HARDEE	-2.46	3.81	7	-1.31	2.73	11
HENDRY	-2.95	2.84	7	-1.07	1.66	13
HERNANDO	0.51	2.23	40	-0.39	2.63	52
HIGHLANDS	2.17	2.76	33	0.44	2.63	39
HILLSBOROUGH	-0.09	2.72	319	-0.89	2.40	443
HOLMES	-0.01	1.44	7	-1.49	1.61	12

INDIAN RIVER	-0.74	1.43	31	-1.21	2.67	50
JACKSON	-1.56	2.69	11	-0.31	1.93	22
JEFFERSON	-2.06	1.63	8	-1.90	1.40	5
LAFAYETTE	0.81	1.25	4	-0.28	0.31	4
LAKE	-0.88	2.97	73	-0.01	2.29	109
LEE	0.17	3.19	165	-0.28	2.36	235
LEON	-0.63	2.81	83	0.25	2.03	78
LEVY	0.07	2.62	17	0.13	2.17	26
LIBERTY	2.07	2.02	4	-2.81	0.49	4
MADISON	-1.95	1.67	5	-1.07	1.66	8
MANATEE	0.69	2.90	77	0.35	2.06	123
MARION	-2.31	2.89	71	-0.59	2.26	121
MARTIN	-0.17	2.52	28	0.73	2.50	51
MONROE	0.62	3.51	32	0.65	1.95	36
NASSAU	-1.08	3.45	25	-0.23	2.30	24
OKALOOSA	0.36	2.97	55	0.67	2.33	58
OKEECHOBEE	1.99	1.94	14	-0.32	2.12	18
ORANGE	-0.34	2.61	217	0.31	2.00	333
OSCEOLA	-0.11	2.70	90	-0.19	2.36	137
PALM BEACH	-0.17	3.12	279	0.00	2.23	363
PASCO	0.59	3.05	128	-0.27	2.11	203
PINELLAS	-0.40	3.01	211	-0.82	2.19	270
POLK	-1.80	3.20	191	-0.61	2.07	287
PUTNAM	0.01	4.10	22	-1.07	1.95	38
SANTA ROSA	-0.14	2.83	46	0.23	2.14	51
SARASOTA	1.06	3.24	71	0.20	2.27	98
SEMINOLE	-0.52	2.71	108	-0.19	2.07	172
ST. JOHNS	1.22	3.26	50	0.50	2.42	57
ST. LUCIE	-0.39	3.14	93	0.17	2.06	147
SUMTER	-0.34	4.71	11	-1.34	2.58	23
SUWANNEE	0.02	2.69	9	-0.40	1.32	13
TAYLOR	0.86	2.24	13	1.07	1.29	10
UF LAB SCH	1.42	2.93	3	1.38	0.63	2
UNION	-0.44	3.61	5	1.70	2.10	9
VOLUSIA	-0.26	2.89	102	-0.71	1.84	174
WAKULLA	-0.12	2.78	16	0.56	2.20	18
WALTON	1.18	2.36	20	-0.19	2.31	28
WASHINGTON	-0.93	3.06	7	0.11	3.76	7
State Average	-0.10	3.31	4,979	-0.08	2.34	6,977

**Table 4. Mean and Standard Deviation of Teacher Value-Added Scores by District:
Grade 7, 2012-13**

	Math			Read		
	Mean	Std. Dev.	N	Mean	Std. Dev.	N
ALACHUA	-0.37	1.97	60	-1.24	2.28	82
BAKER	-0.02	0.50	6	2.06	2.06	11
BAY	-0.11	1.68	58	-0.18	2.02	68
BRADFORD	-1.70	0.74	5	0.45	3.56	6
BREVARD	-1.21	2.18	114	-1.21	2.17	150
BROWARD	-0.20	2.22	323	-0.04	2.39	547
CALHOUN	0.73	0.99	11	-0.37	2.37	15
CHARLOTTE	-0.69	2.03	21	-1.34	1.86	27
CITRUS	-0.34	1.55	34	-0.29	2.54	42
CLAY	-0.67	2.24	56	-0.84	2.50	61
COLLIER	1.82	2.04	78	0.42	2.39	107
COLUMBIA	-1.23	1.07	19	-0.53	1.86	20
DADE	0.36	2.06	749	0.73	2.43	1,119
DEAF/BLIND	-0.08	0.56	2	0.27	0.11	5
DESOTO	-0.95	3.31	7	-1.15	2.77	9
DIXIE	1.09	0.60	3	1.31	2.20	6
DUVAL	-0.71	1.88	294	-0.03	2.29	305
ESCAMBIA	0.07	1.56	65	-0.69	2.14	101
FAMU LAB SCH	1.22		1	0.11	1.62	3
FAU LAB SCH	-1.36	2.87	5	0.39	2.31	7
FL VIRTUAL	0.02	1.05	7	0.95	2.57	6
FLAGLER	0.99	2.52	22	0.06	2.23	20
FRANKLIN	0.42	2.60	5	1.09	2.84	3
FSU LAB SCH	0.36	1.86	5	-0.16	2.21	5
GADSDEN	-2.04	1.94	22	0.32	2.42	24
GILCHRIST	2.51	1.17	5	0.60	2.25	7
GLADES	-1.00	4.79	4	-2.53	3.90	10
GULF	-0.41	0.45	4	-0.37	4.13	5
HAMILTON	-3.51	2.92	3	-0.17	1.15	5
HARDEE	-1.10	1.20	7	-0.92	2.18	11
HENDRY	-0.25	2.10	9	0.75	1.54	13
HERNANDO	1.73	1.70	45	-0.10	2.19	60
HIGHLANDS	0.52	1.93	33	-0.48	2.19	33
HILLSBOROUGH	0.09	1.84	390	-0.57	2.69	448
HOLMES	0.96	1.60	8	-0.08	2.08	13

INDIAN RIVER	0.33	1.75	37	-0.51	2.22	53
JACKSON	-0.05	1.54	14	-1.41	2.36	22
JEFFERSON	-2.50	0.75	11	-2.60	2.75	8
LAFAYETTE	0.52	0.99	3	-1.22	1.39	2
LAKE	-0.03	1.76	74	-0.21	1.91	121
LEE	0.58	2.06	177	-0.01	2.37	258
LEON	-0.25	1.78	80	0.01	2.31	81
LEVY	1.26	1.90	15	0.51	2.07	29
LIBERTY	-0.79	1.69	4	0.19	2.50	4
MADISON	0.54	1.32	8	-0.31	2.51	9
MANATEE	0.38	2.17	99	0.22	2.30	133
MARION	0.08	1.66	81	-0.21	2.30	129
MARTIN	0.44	1.89	34	-0.71	2.80	56
MONROE	0.83	1.67	30	0.19	1.27	28
NASSAU	0.02	2.13	21	0.66	2.23	29
OKALOOSA	-0.45	1.73	74	0.10	2.32	64
OKEECHOBEE	0.82	1.88	15	-0.08	2.21	21
ORANGE	-0.31	2.46	264	0.55	2.13	341
OSCEOLA	0.47	1.92	106	-0.31	2.20	148
PALM BEACH	0.03	2.05	317	0.60	2.39	360
PASCO	0.42	1.82	136	0.02	2.19	175
PINELLAS	-0.60	1.97	238	-0.46	2.61	269
POLK	-0.81	1.81	239	-0.46	2.09	328
PUTNAM	-0.73	2.72	24	-0.12	2.28	27
SANTA ROSA	0.26	1.77	43	-0.22	2.45	57
SARASOTA	0.34	2.06	91	0.50	2.40	102
SEMINOLE	0.19	1.69	140	-0.01	2.11	191
ST. JOHNS	0.82	1.69	63	0.30	2.34	74
ST. LUCIE	-0.69	1.90	98	-0.31	2.12	152
SUMTER	0.12	1.43	16	-0.06	3.23	25
SUWANNEE	0.45	1.49	11	0.27	2.08	18
TAYLOR	0.02	1.05	13	-1.33	1.97	12
UF LAB SCH	3.32		1	0.50	0.84	3
UNION	0.70	1.18	6	1.28	1.32	7
VOLUSIA	-0.25	1.95	117	-0.99	1.97	178
WAKULLA	0.78	1.65	15	0.28	3.06	17
WALTON	0.62	2.05	20	0.90	2.18	29
WASHINGTON	0.87	1.21	10	-1.00	1.32	10
State Average	-0.02	2.05	5,225	-0.01	2.39	6,924

**Table 5. Mean and Standard Deviation of Teacher Value-Added Scores by District:
Grade 8, 2012-13**

	Math			Read		
	Mean	Std. Dev.	N	Mean	Std. Dev.	N
ALACHUA	0.18	1.62	48	-0.45	2.10	79
BAKER	-1.88	1.37	6	-1.31	2.76	13
BAY	0.05	1.38	48	-0.50	1.89	58
BRADFORD	-1.15	1.51	3	-0.71	0.87	6
BREVARD	0.08	1.54	109	-0.96	2.10	155
BROWARD	-0.20	2.23	288	0.50	2.35	504
CALHOUN	1.69	1.80	7	-0.63	2.51	12
CHARLOTTE	-1.26	1.70	24	-1.24	1.43	30
CITRUS	1.22	1.58	28	-0.45	2.27	38
CLAY	0.25	2.05	61	-0.79	2.00	68
COLLIER	0.43	2.41	82	0.19	1.90	107
COLUMBIA	-1.06	1.90	16	-0.77	1.75	19
DADE	0.46	2.11	630	0.84	2.39	1,013
DEAF/BLIND	0.98	0.65	2	-0.22	2.54	5
DESOTO	-2.11	1.43	5	-2.61	2.40	6
DIXIE	0.63	1.47	3	-0.57	1.81	5
DUVAL	-0.80	1.99	243	0.41	2.19	249
ESCAMBIA	-0.45	1.72	58	-0.73	2.17	95
FAMU LAB SCH				0.01	1.92	2
FAU LAB SCH	0.50	1.29	5	0.41	2.57	8
FL VIRTUAL	-0.84	2.35	4	-0.05	1.99	7
FLAGLER	0.43	2.89	20	-0.11	1.81	20
FRANKLIN	0.33	0.96	5	0.65	2.74	4
FSU LAB SCH	-0.60	1.33	4	0.39	3.56	5
GADSDEN	-0.35	1.79	13	0.62	2.23	20
GILCHRIST	-0.39	1.10	4	-0.79	1.31	6
GLADES	-0.55	2.91	6	0.67	2.44	10
GULF	1.04	3.12	7	0.22	1.93	6
HAMILTON	-0.87	0.97	6	-1.06	1.85	6
HARDEE	-1.23	0.87	5	-1.55	2.81	10
HENDRY	-1.52	1.17	9	-0.20	2.22	13
HERNANDO	0.45	1.51	44	-0.81	2.00	60
HIGHLANDS	0.60	2.12	24	-0.21	1.76	31
HILLSBOROUGH	-0.58	1.61	356	-0.20	2.27	424
HOLMES	-1.36	2.35	9	-2.68	1.81	11

INDIAN RIVER	-0.12	1.61	20	-0.63	2.04	55
JACKSON	-0.26	2.01	16	-0.71	1.61	24
JEFFERSON	-0.45	0.32	6	-0.94	2.26	7
LAFAYETTE	1.60	2.70	2	-1.63	1.99	3
LAKE	0.46	1.78	61	-0.46	2.14	95
LEE	-0.08	2.00	160	0.13	2.14	218
LEON	0.28	1.91	75	0.26	1.95	74
LEVY	0.54	2.01	14	-0.34	1.99	31
LIBERTY	0.27	1.09	2	0.55	0.80	2
MADISON	-0.87	1.09	6	-0.37	1.99	8
MANATEE	0.37	1.81	100	-0.11	2.10	134
MARION	0.53	1.65	76	-0.87	2.09	125
MARTIN	0.53	1.53	34	0.73	2.25	57
MONROE	-0.25	1.86	21	-0.35	1.96	21
NASSAU	0.37	2.51	23	-0.47	2.38	25
OKALOOSA	0.59	1.68	64	-0.27	2.35	67
OKEECHOBEE	-0.46	1.82	15	-0.67	1.82	19
ORANGE	-0.31	2.12	306	0.26	2.10	349
OSCEOLA	0.11	1.57	93	-0.20	1.95	131
PALM BEACH	0.44	2.05	274	0.70	2.21	352
PASCO	0.11	1.46	120	-0.46	1.88	179
PINELLAS	-0.40	1.67	233	-0.41	2.06	261
POLK	-0.20	1.69	182	-0.68	2.03	264
PUTNAM	-0.20	1.48	19	-0.21	1.79	26
SANTA ROSA	0.36	2.04	40	-0.48	1.83	43
SARASOTA	0.66	2.05	86	-0.22	2.21	101
SEMINOLE	-0.07	1.57	107	0.04	2.05	178
ST. JOHNS	0.72	1.78	59	0.55	1.95	68
ST. LUCIE	0.13	1.63	83	0.06	2.11	138
SUMTER	-0.70	1.34	16	-0.87	1.36	24
SUWANNEE	-0.39	1.13	15	0.19	1.97	20
TAYLOR	0.53	0.74	10	-0.62	1.64	13
UF LAB SCH	-0.63		1	-0.55	0.45	3
UNION	0.01	0.68	6	1.71	2.03	8
VOLUSIA	-0.23	1.50	106	-1.29	2.22	176
WAKULLA	0.81	1.80	11	-0.01	2.22	15
WALTON	-0.80	1.72	16	-0.56	1.88	27
WASHINGTON	1.98	1.79	7	-0.67	3.62	11
State Average	0.00	1.93	4,667	0.01	2.25	6,457

**Table 6. Mean and Standard Deviation of Teacher Value-Added Scores by District:
Grade 9, 2012-13**

	Read		
	Mean	Std. Dev.	N
ALACHUA	0.28	2.91	46
BAKER	1.09	1.67	10
BAY	-0.47	2.59	71
BRADFORD	1.72	1.02	3
BREVARD	0.61	2.34	153
BROWARD	-0.23	2.90	417
CALHOUN	-0.92	2.24	13
CHARLOTTE	-0.65	3.79	27
CITRUS	-0.06	2.43	40
CLAY	0.38	2.34	68
COLLIER	0.78	2.17	94
COLUMBIA	-0.14	2.11	19
DADE	0.34	2.94	902
DEAF/BLIND	0.65	1.63	7
DESOTO	-1.90	0.86	11
DIXIE	1.99	1.87	2
DOZIER/OKEEC	3.63	2.66	2
DUVAL	-0.25	2.50	300
ESCAMBIA	-0.98	2.88	82
FAMU LAB SCH	2.55	1.91	2
FAU LAB SCH	1.58		1
FL VIRTUAL	1.73	2.47	9
FLAGLER	-0.16	1.94	27
FRANKLIN	-0.52	3.14	3
FSU LAB SCH	1.44	3.03	5
GADSDEN	-2.42	2.45	16
GILCHRIST	2.07	2.42	12
GLADES	-1.49	1.99	3
GULF	-0.49	1.64	8
HAMILTON	-1.13	4.53	3
HARDEE	-0.58	2.14	7
HENDRY	-1.02	1.64	20
HERNANDO	0.47	2.54	56
HIGHLANDS	-0.80	2.09	34
HILLSBOROUGH	-0.30	3.05	422
HOLMES	-0.68	3.01	13

INDIAN RIVER	0.52	3.33	40
JACKSON	-0.80	2.07	18
JEFFERSON	-1.86	2.39	4
LAFAYETTE	0.37	2.65	4
LAKE	-0.44	2.30	86
LEE	-0.14	2.72	163
LEON	0.30	2.55	64
LEVY	0.81	2.30	21
LIBERTY	1.33	2.85	6
MADISON	-0.36	1.58	11
MANATEE	0.46	2.58	113
MARION	-0.64	2.75	90
MARTIN	0.31	3.22	35
MONROE	0.52	1.89	25
NASSAU	0.67	3.12	18
OKALOOSA	-0.17	2.71	60
OKEECHOBEE	0.53	2.21	15
ORANGE	0.18	2.25	293
OSCEOLA	0.22	2.78	164
PALM BEACH	-0.11	2.56	331
PASCO	0.14	2.60	195
PINELLAS	-0.00	2.69	243
POLK	-1.06	2.70	183
PUTNAM	-0.01	1.83	25
SANTA ROSA	0.70	2.51	45
SARASOTA	0.13	2.25	81
SEMINOLE	-0.05	2.45	162
ST. JOHNS	0.93	2.39	76
ST. LUCIE	0.12	2.31	99
SUMTER	0.54	2.30	17
SUWANNEE	0.25	2.24	22
TAYLOR	-1.82	0.47	6
UF LAB SCH	-0.39	1.19	2
UNION	-1.39	1.52	5
VOLUSIA	0.10	2.51	158
WAKULLA	-0.04	2.29	11
WALTON	-0.53	2.83	28
WASHINGTON	-0.50	1.55	10
State Average	0.01	2.69	5,837

**Table 7. Mean and Standard Deviation of Teacher Value-Added Scores by District:
Grade 10, 2012-13**

	Read		
	Mean	Std. Dev.	N
ALACHUA	0.03	2.61	54
BAKER	0.10	1.56	11
BAY	-1.05	2.54	72
BRADFORD	-0.95	1.74	7
BREVARD	-0.23	2.39	175
BROWARD	-0.04	2.50	447
CALHOUN	-0.39	1.80	13
CHARLOTTE	-0.79	2.22	34
CITRUS	0.39	1.91	43
CLAY	0.55	2.09	80
COLLIER	0.34	2.55	92
COLUMBIA	-0.19	1.88	13
DADE	0.38	2.46	932
DEAF/BLIND	1.29	3.91	7
DESOTO	-0.97	1.60	15
DIXIE	1.55	2.04	3
DOZIER/OKEEC	2.75	2.92	2
DUVAL	-0.11	2.15	351
ESCAMBIA	0.16	2.58	82
FAMU LAB SCH	-2.26	0.61	3
FL VIRTUAL	0.08	1.28	12
FLAGLER	0.16	2.44	26
FRANKLIN	-0.13	1.93	2
FSU LAB SCH	-0.13	3.12	5
GADSDEN	-1.40	1.39	17
GILCHRIST	1.49	2.11	10
GLADES	1.72	0.59	4
GULF	-1.10	3.38	6
HAMILTON	0.52	1.74	3
HARDEE	0.18	2.10	12
HENDRY	-0.91	2.92	32
HERNANDO	-0.81	2.39	61
HIGHLANDS	-0.15	2.57	36
HILLSBOROUGH	0.02	2.49	410
HOLMES	-0.09	2.43	11

INDIAN RIVER	0.15	2.57	36
JACKSON	-0.58	2.28	24
JEFFERSON	-1.02	2.44	5
LAFAYETTE	-0.06	2.25	4
LAKE	-0.06	2.53	89
LEE	-0.57	2.52	200
LEON	-0.47	2.04	63
LEVY	0.34	2.61	23
LIBERTY	-1.20	2.59	6
MADISON	-1.90	2.37	9
MANATEE	0.20	2.76	99
MARION	-0.55	2.23	99
MARTIN	0.72	1.96	48
MONROE	-0.42	1.52	26
NASSAU	-0.43	2.01	18
OKALOOSA	-0.33	2.07	65
OKEECHOBEE	0.07	3.70	17
ORANGE	0.17	2.33	347
OSCEOLA	0.74	2.69	158
PALM BEACH	0.68	2.53	381
PASCO	-0.34	1.97	207
PINELLAS	-0.12	2.40	301
POLK	-0.50	2.44	250
PUTNAM	0.28	1.98	22
SANTA ROSA	-0.20	2.58	43
SARASOTA	-0.41	2.50	89
SEMINOLE	-0.09	2.23	170
ST. JOHNS	0.59	2.42	92
ST. LUCIE	-0.00	2.11	95
SUMTER	-0.62	2.09	18
SUWANNEE	-0.32	1.94	20
TAYLOR	-0.84	2.53	7
UF LAB SCH	0.76	0.91	4
UNION	-0.99	2.37	8
VOLUSIA	-0.38	2.45	166
WAKULLA	-0.52	2.15	9
WALTON	-1.26	2.29	29
WASHINGTON	0.17	1.77	11
State Average	0.00	2.43	6,341

APPENDIX E. SCHOOL COMPONENT BY DISTRICT

**Table 1. Mean and Standard Deviation of the School Component by District:
Grade 4, 2012-13**

	Math			Read		
	Mean	Std.	N	Mean	Std.	N
ALACHUA	-0.50	2.75	33	-0.44	1.27	34
BAKER	-0.33	1.47	2	-1.02	1.82	2
BAY	-0.01	2.51	24	-0.46	1.35	24
BRADFORD	0.29	0.63	5	-0.35	1.01	5
BREVARD	-0.40	2.55	67	0.54	1.34	66
BROWARD	0.21	2.49	194	-0.03	1.30	195
CALHOUN	-1.09	3.65	3	-1.23	0.57	3
CHARLOTTE	-0.70	1.56	10	-0.31	1.27	10
CITRUS	-0.56	2.56	11	-0.21	1.47	11
CLAY	0.10	2.33	26	0.06	1.13	26
COLLIER	0.67	2.22	33	-0.38	1.08	33
COLUMBIA	-0.04	4.74	10	0.04	1.59	10
DADE	0.09	2.24	267	0.26	1.40	267
DEAF/BLIND	-0.87	3.02	2	0.34	0.31	2
DESOTO	-2.32	0.21	3	-1.23	1.52	3
DIXIE	0.12	0.25	2	-0.25	0.72	2
DUVAL	0.34	2.37	115	-0.11	1.32	115
ESCAMBIA	0.75	2.51	32	0.21	1.15	32
FAMU LAB SCH	-0.27		1	0.77		1
FAU LAB SCH	1.87	1.17	2	-0.45	0.92	2
FL VIRTUAL	-5.46		1	0.52		1
FLAGLER	-0.98	1.60	7	0.41	1.36	7
FRANKLIN	4.29	3.54	2	1.20	0.59	2
FSU LAB SCH	-0.35	0.49	2	1.25	0.46	2
GADSDEN	1.04	2.75	11	0.54	1.58	11
GILCHRIST	1.12	1.20	2	1.25	0.10	2
GLADES	0.09	3.44	3	0.04	2.32	3
GULF	0.89	2.85	2	-0.91	1.03	2
HAMILTON	-0.38	0.85	3	0.18	0.61	3
HARDEE	0.69	2.68	5	-1.11	1.75	5
HENDRY	2.73	3.29	6	-0.22	0.89	6
HERNANDO	-0.77	2.08	14	-0.48	1.56	14
HIGHLANDS	0.89	2.15	10	-0.72	0.83	10
HILLSBOROUGH	0.08	2.31	165	-0.07	1.16	165

HOLMES	-1.31	3.44	4	-0.22	1.41	4
INDIAN RIVER	-1.36	2.39	16	-1.05	1.44	16
JACKSON	1.31	1.97	9	0.26	1.34	9
JEFFERSON	-1.74		1	-0.50		1
LAFAYETTE	-0.23		1	-1.14		1
LAKE	-0.19	2.50	30	-0.46	1.12	30
LEE	-1.37	2.38	62	-0.04	1.35	62
LEON	-0.13	2.40	27	0.91	1.59	27
LEVY	0.72	3.47	7	-0.93	0.87	7
LIBERTY	-0.64	3.22	2	-0.80	0.20	2
MADISON	-2.32	3.17	4	0.26	0.38	4
MANATEE	0.17	2.81	43	-0.38	1.39	43
MARION	-0.04	2.24	34	-0.46	1.19	34
MARTIN	-0.60	2.57	14	-1.59	1.11	14
MONROE	1.24	3.18	11	-0.42	0.93	11
NASSAU	2.20	2.63	5	0.24	1.59	5
OKALOOSA	-0.01	1.87	24	-0.01	0.93	24
OKEECHOBEE	0.62	2.38	6	-0.77	1.55	6
ORANGE	0.05	2.53	140	0.38	1.30	139
OSCEOLA	-0.46	2.63	36	0.05	1.10	36
PALM BEACH	0.73	2.28	124	0.58	1.29	126
PASCO	-0.22	2.61	53	-0.42	1.34	53
PINELLAS	-0.34	2.27	92	0.13	1.38	92
POLK	-0.94	3.00	82	-0.45	1.38	81
PUTNAM	0.49	2.78	10	-0.29	1.35	10
SANTA ROSA	0.66	2.00	16	0.26	0.89	16
SARASOTA	-0.18	2.08	32	-0.06	1.24	33
SEMINOLE	0.33	2.34	41	0.42	1.09	41
ST. JOHNS	0.52	2.88	21	0.59	1.72	21
ST. LUCIE	-1.84	2.64	30	-1.11	1.32	31
SUMTER	0.77	1.24	5	0.09	0.96	5
SUWANNEE	-0.14	2.80	2	-1.65	0.74	2
TAYLOR	-1.68	0.19	2	-0.90	0.86	2
UF LAB SCH	2.26		1	-2.19		1
UNION	4.63		1	1.82		1
VOLUSIA	0.46	2.62	52	-0.40	1.16	52
WAKULLA	0.02	1.39	5	0.02	0.68	5
WALTON	0.01	1.89	7	-0.14	1.22	7
WASHINGTON	1.86	5.57	2	-0.27	1.72	2
State Average	0.01	2.49	2,129	-0.00	1.34	2,132

**Table 2. Mean and Standard Deviation of the School Component by District:
Grade 5, 2012-13**

	Math			Read		
	Mean	Std.	N	Mean	Std.	N
ALACHUA	0.07	1.82	34	0.23	1.13	34
BAKER	-3.58		1	-1.57		1
BAY	1.07	2.45	23	0.69	1.14	23
BRADFORD	0.87	2.38	5	0.09	0.94	5
BREVARD	-0.07	2.31	69	-0.12	0.87	68
BROWARD	-0.34	2.00	194	-0.24	1.05	194
CALHOUN	0.08	2.24	3	0.63	1.17	3
CHARLOTTE	0.94	2.75	11	0.17	1.29	11
CITRUS	0.75	2.68	12	-0.51	0.83	12
CLAY	0.68	2.43	26	-0.21	1.06	26
COLLIER	1.65	2.34	33	-0.46	1.04	33
COLUMBIA	-1.10	3.67	10	0.04	1.09	10
DADE	-0.46	2.48	265	0.06	1.11	265
DEAF/BLIND	-2.44	1.43	2	-0.74	0.70	2
DESOTO	-2.26	0.80	3	-1.04	0.73	3
DIXIE	-1.84	5.22	2	0.75	0.86	2
DUVAL	-0.73	2.43	117	0.09	0.82	117
ESCAMBIA	-0.23	2.02	34	-0.54	0.76	35
FAMU LAB SCH	-0.97		1	-1.72		1
FAU LAB SCH	2.17	1.12	2	0.51	0.11	2
FL VIRTUAL	-4.06		1	0.05		1
FLAGLER	-0.12	1.17	8	0.10	0.74	8
FRANKLIN	1.50	1.53	2	0.38	0.28	2
FSU LAB SCH	-1.88	0.88	2	0.04	0.39	2
GADSDEN	-1.32	1.70	10	0.64	0.77	10
GILCHRIST	0.28	2.02	2	0.03	1.90	2
GLADES	-0.71	1.16	3	-0.92	1.01	3
GULF	-2.89	0.06	2	-1.40	0.39	2
HAMILTON	-2.08	2.03	3	-0.33	0.41	3
HARDEE	-1.16	1.21	5	-0.46	0.26	5
HENDRY	2.08	2.00	6	0.42	0.45	6
HERNANDO	0.16	2.26	14	0.08	0.88	14
HIGHLANDS	-1.86	1.38	10	0.23	0.97	10
HILLSBOROUGH	1.17	2.23	167	-0.34	0.98	166
HOLMES	-0.83	1.44	4	0.53	0.26	4
INDIAN RIVER	0.17	1.88	16	0.06	0.81	16

JACKSON	0.08	1.99	8	0.34	0.55	8
JEFFERSON	-4.31		1	-0.36		1
LAFAYETTE	4.12		1	0.72		1
LAKE	-0.33	2.00	30	-0.16	0.92	30
LEE	-0.17	2.59	62	-0.32	0.83	62
LEON	0.09	1.91	29	0.32	0.88	29
LEVY	-0.64	1.95	7	0.36	1.22	7
LIBERTY	-0.32	1.98	2	0.50	0.93	2
MADISON	0.23	0.79	4	-0.22	0.70	4
MANATEE	1.15	2.91	43	0.01	0.91	43
MARION	-0.86	2.44	33	-0.25	1.19	33
MARTIN	-0.04	3.57	13	-0.11	0.92	13
MONROE	-0.63	2.52	11	-0.14	0.72	11
NASSAU	-0.42	3.03	5	0.46	1.14	5
OKALOOSA	0.45	1.62	25	0.11	0.75	25
OKEECHOBEE	-2.06	1.70	5	-0.57	1.22	5
ORANGE	-0.01	2.45	138	0.20	0.96	139
OSCEOLA	-0.19	2.21	35	-0.01	0.90	35
PALM BEACH	0.21	2.36	124	0.39	1.03	129
PASCO	2.03	2.29	53	0.30	0.89	53
PINELLAS	0.16	3.01	93	-0.12	1.06	94
POLK	-0.32	2.37	84	0.14	1.04	84
PUTNAM	-2.06	1.48	11	-0.36	0.76	11
SANTA ROSA	0.56	2.66	16	0.24	0.89	16
SARASOTA	1.04	2.36	32	0.41	1.07	32
SEMINOLE	-0.29	2.19	42	0.32	1.14	42
ST. JOHNS	0.11	2.10	21	0.49	1.25	21
ST. LUCIE	-1.24	2.66	31	-0.50	1.01	31
SUMTER	0.42	2.33	5	0.20	1.17	5
SUWANNEE	0.84	0.07	2	-0.38	0.39	2
TAYLOR	-0.73	0.16	2	0.01	1.11	2
UF LAB SCH	-1.30		1	-0.76		1
UNION	-3.19		1	-1.78		1
VOLUSIA	0.07	2.30	52	0.14	0.95	52
WAKULLA	-0.22	2.07	5	-0.08	1.07	5
WALTON	0.16	1.43	6	0.66	0.85	6
WASHINGTON	-3.50	2.05	2	-1.07	0.36	2
State Average	0.02	2.44	2,137	0.00	1.02	2,143

**Table 3. Mean and Standard Deviation of the School Component by District:
Grade 6, 2012-13**

	Math			Read		
	Mean	Std.	N	Mean	Std.	N
ALACHUA	-0.01	2.18	18	-0.33	1.15	17
BAKER	7.25		1	0.88		1
BAY	-0.26	2.84	13	-0.29	1.60	13
BRADFORD	1.00	4.53	2	0.72	1.23	2
BREVARD	3.82	2.90	70	1.27	1.23	71
BROWARD	-0.76	2.47	81	-0.14	1.48	80
CALHOUN	1.20	1.58	3	0.31	1.04	3
CHARLOTTE	-2.99	2.13	4	-1.36	1.70	4
CITRUS	-1.87	1.32	4	-0.53	1.94	5
CLAY	3.37	3.04	24	1.49	1.17	24
COLLIER	1.35	2.66	22	0.31	1.43	22
COLUMBIA	-2.10	2.62	5	0.84	1.41	4
DADE	-0.80	3.16	157	0.23	1.91	157
DEAF/BLIND	-1.49	1.36	2	-0.11	2.09	2
DESOTO	-0.96	2.75	2	-1.68	0.89	2
DIXIE	0.59	0.42	2	2.16	1.82	2
DUVAL	-1.70	2.44	45	-0.01	1.64	45
ESCAMBIA	-2.41	1.36	9	-1.51	1.73	10
FAMU LAB SCH	-2.29		1	-0.93		1
FAU LAB SCH	2.13	0.69	2	1.74	2.19	2
FL VIRTUAL	0.02		1	2.97		1
FLAGLER	4.31	2.60	9	1.02	0.81	9
FRANKLIN	-0.57	2.09	2	0.24	2.61	2
FSU LAB SCH	0.52		1	-1.80		1
GADSDEN	-2.26	3.00	8	-0.76	1.81	7
GILCHRIST	1.64	2.37	2	-0.22	0.17	2
GLADES	2.60	1.38	3	0.60	0.67	3
GULF	3.24	2.02	2	1.10	0.53	2
HAMILTON	3.67	2.01	3	0.01	1.37	3
HARDEE	-3.89		1	-2.32		1
HENDRY	-3.68	2.62	2	-1.34	0.30	2
HERNANDO	0.42	1.88	10	-0.10	2.12	10
HIGHLANDS	3.16	2.36	5	0.22	2.49	5
HILLSBOROUGH	-0.10	2.40	72	-0.87	1.57	72
HOLMES	-0.83	2.46	4	-1.48	0.43	4
INDIAN RIVER	-0.89	1.50	6	-1.27	1.46	6

JACKSON	-1.38	2.44	7	-0.23	0.93	7
JEFFERSON	-3.28		1	-2.17		1
LAFAYETTE	1.11		1	-0.29		1
LAKE	-0.41	2.56	17	-0.03	1.23	17
LEE	0.20	2.41	35	-0.26	1.44	35
LEON	-0.46	2.36	16	0.30	1.13	16
LEVY	0.35	1.51	8	0.07	1.25	8
LIBERTY	1.55	2.64	2	-1.16	0.27	3
MADISON	-2.56	2.20	2	-1.29	0.48	2
MANATEE	0.98	2.06	25	0.40	0.96	25
MARION	-2.84	2.40	12	-0.77	1.17	13
MARTIN	-1.15	2.93	7	0.34	0.80	7
MONROE	1.33	3.04	9	0.85	1.40	9
NASSAU	-1.92	2.83	4	-0.39	1.59	4
OKALOOSA	0.34	1.86	16	0.47	1.41	16
OKEECHOBEE	2.96	2.10	2	-0.04	1.08	2
ORANGE	-0.21	1.99	51	0.48	1.21	51
OSCEOLA	-0.02	1.98	23	-0.06	1.48	23
PALM BEACH	-0.20	2.68	50	-0.01	1.28	50
PASCO	0.73	2.21	22	-0.28	1.30	22
PINELLAS	-0.11	2.56	37	-0.89	1.33	37
POLK	-1.95	2.80	39	-0.70	1.41	39
PUTNAM	-0.19	4.13	7	-0.77	1.61	7
SANTA ROSA	-0.33	2.38	13	0.19	1.32	13
SARASOTA	1.40	2.84	19	0.35	1.56	19
SEMINOLE	-0.76	1.39	16	-0.43	1.43	16
ST. JOHNS	1.29	2.51	11	0.61	1.54	11
ST. LUCIE	-0.78	2.99	18	0.14	1.42	18
SUMTER	0.71	5.84	4	-1.05	2.07	4
SUWANNEE	0.11	1.31	2	-1.17	1.60	2
TAYLOR	1.22	0.26	2	1.00	0.28	2
UF LAB SCH	1.74		1	0.96		1
UNION	-0.64		1	2.40		1
VOLUSIA	-0.30	2.17	17	-0.82	1.38	17
WAKULLA	-0.48	1.85	3	0.44	1.37	3
WALTON	1.31	2.66	6	0.07	1.66	6
WASHINGTON	-1.07	0.73	2	-0.14	1.70	2
State Average	0.02	2.97	1,106	0.01	1.59	1,107

**Table 4. Mean and Standard Deviation of the School Component by District:
Grade 7, 2012-13**

	Math			Read		
	Mean	Std.	N	Mean	Std.	N
ALACHUA	-0.21	1.22	17	-0.97	1.06	17
BAKER	-0.03		1	2.49		1
BAY	-0.22	1.18	14	-0.11	0.94	14
BRADFORD	-1.35	1.39	2	0.45		1
BREVARD	-1.02	1.97	30	-0.87	1.14	30
BROWARD	-0.15	1.58	77	-0.03	1.20	78
CALHOUN	0.89	0.34	3	-0.26	0.29	3
CHARLOTTE	-0.91	1.43	4	-1.28	0.55	4
CITRUS	-0.36	1.28	5	-0.53	0.45	5
CLAY	-0.79	2.00	7	-0.94	1.01	7
COLLIER	1.85	1.74	16	0.50	1.13	16
COLUMBIA	-1.53	0.28	4	-0.55	0.78	4
DADE	0.54	1.69	148	0.80	1.28	149
DEAF/BLIND	-0.04	0.30	2	0.15	0.05	2
DESOTO	-1.37		1	-1.02		1
DIXIE	1.03		1	1.32		1
DUVAL	-1.02	1.69	45	-0.02	1.08	44
ESCAMBIA	-0.02	1.30	10	-0.70	0.86	12
FAMU LAB SCH	0.66		1	0.25		1
FAU LAB SCH	-1.33	0.37	2	0.13	0.64	2
FL VIRTUAL	-0.19		1	0.94		1
FLAGLER	0.99	2.19	6	-0.05	1.07	6
FRANKLIN	1.02	2.71	2	0.37	1.40	2
FSU LAB SCH	0.47		1	-0.15		1
GADSDEN	-1.41	1.48	8	0.10	1.03	8
GILCHRIST	2.40	0.51	2	0.51	1.34	2
GLADES	-0.37	3.07	3	-1.54	2.59	3
GULF	-0.32	0.18	2	-0.44	1.79	2
HAMILTON	-2.25	3.00	2	0.02	0.20	2
HARDEE	-1.00	1.07	2	-0.63	0.90	2
HENDRY	-0.13	1.38	4	0.54	0.52	3
HERNANDO	1.66	1.92	10	-0.11	0.81	10
HIGHLANDS	0.73	1.43	4	-0.58	1.39	5
HILLSBOROUGH	0.05	1.42	74	-0.44	1.30	73
HOLMES	0.83	0.52	4	-0.09	1.04	4
INDIAN RIVER	0.24	1.99	7	-0.51	0.87	7

JACKSON	0.08	1.00	7	-0.90	1.16	7
JEFFERSON	-2.35	1.92	2	-1.48	0.26	2
LAFAYETTE	0.54		1	-0.62		1
LAKE	-0.14	1.48	17	-0.36	1.04	17
LEE	0.59	1.80	34	-0.03	1.23	34
LEON	-0.17	1.34	14	0.13	0.58	14
LEVY	1.02	0.80	8	0.35	0.92	8
LIBERTY	-0.77	1.17	2	-0.39	1.42	2
MADISON	0.54	1.07	3	0.14	0.76	2
MANATEE	0.51	1.79	24	0.17	1.07	23
MARION	-0.13	1.29	14	-0.21	0.93	14
MARTIN	0.34	1.90	7	-0.62	1.46	7
MONROE	0.76	0.94	9	0.13	0.45	9
NASSAU	-0.02	2.10	4	0.53	1.66	4
OKALOOSA	-0.57	0.99	17	-0.04	0.84	16
OKEECHOBEE	0.91	2.17	3	-0.03	0.45	3
ORANGE	-0.22	1.41	51	0.53	1.06	51
OSCEOLA	0.37	1.85	24	-0.29	0.87	23
PALM BEACH	-0.02	1.49	48	0.65	1.17	49
PASCO	0.43	1.70	25	-0.01	1.23	24
PINELLAS	-0.58	1.43	41	-0.33	1.15	41
POLK	-1.07	1.64	40	-0.42	1.11	40
PUTNAM	-0.74	2.39	6	0.09	1.08	7
SANTA ROSA	0.10	1.54	12	-0.14	0.99	12
SARASOTA	0.43	1.45	20	0.49	0.97	20
SEMINOLE	0.21	1.14	17	-0.21	1.11	18
ST. JOHNS	0.79	1.49	13	0.19	1.21	13
ST. LUCIE	-0.67	1.41	20	-0.31	1.07	20
SUMTER	0.01	0.80	5	0.18	1.47	5
SUWANNEE	0.49	0.22	3	0.11	0.59	3
TAYLOR	0.42	0.90	2	-0.86	1.95	2
UF LAB SCH	1.79		1	0.33		1
UNION	0.97		1	1.39		1
VOLUSIA	-0.31	1.41	19	-0.89	1.03	19
WAKULLA	0.72	0.43	4	-0.05	1.25	4
WALTON	0.57	2.11	6	0.83	1.09	6
WASHINGTON	1.06	0.81	2	-0.88	0.25	2
State Average	0.00	1.65	1,048	0.01	1.22	1,047

**Table 5. Mean and Standard Deviation of School the School Component by District:
Grade 8, 2012-13**

	Math			Read		
	Mean	Std.	N	Mean	Std.	N
ALACHUA	0.09	0.82	18	-0.34	0.66	18
BAKER	-2.36		1	-1.75		1
BAY	0.09	0.86	13	-0.38	0.84	13
BRADFORD	-0.74	0.24	2	-0.41	0.04	2
BREVARD	0.09	0.86	29	-0.71	1.01	30
BROWARD	-0.19	1.46	75	0.37	0.98	76
CALHOUN	1.34	0.90	3	-0.41	0.59	3
CHARLOTTE	-1.22	0.90	6	-1.10	0.49	6
CITRUS	1.35	1.13	6	-0.27	0.85	6
CLAY	0.41	1.94	8	-0.89	0.59	8
COLLIER	0.39	1.38	19	0.15	1.01	19
COLUMBIA	-1.07	1.12	4	-0.67	1.03	4
DADE	0.49	1.47	140	0.85	1.13	143
DEAF/BLIND	0.43	0.29	2	-0.26	1.04	2
DESOTO	-2.47		1	-2.54		1
DIXIE	-0.05		1	-0.73		1
DUVAL	-0.88	1.40	46	0.31	0.94	48
ESCAMBIA	-0.40	1.28	11	-0.90	1.06	10
FAMU LAB SCH				0.37		1
FAU LAB SCH	0.40	0.07	2	0.17	0.06	2
FL VIRTUAL	-1.04		1	-0.05		1
FLAGLER	0.06	1.94	5	-0.04	0.70	6
FRANKLIN	0.18	1.30	2	0.31	0.31	2
FSU LAB SCH	-0.64		1	0.34		1
GADSDEN	-0.29	0.80	7	0.35	0.92	7
GILCHRIST	-0.28	0.08	2	-0.36	0.19	2
GLADES	-0.25	2.30	3	0.49	1.34	3
GULF	0.77	2.29	2	0.24	0.04	2
HAMILTON	-0.81	0.81	2	-0.43	0.51	2
HARDEE	-1.44		1	-1.89		1
HENDRY	-1.07	0.62	3	-0.34	1.49	3
HERNANDO	0.42	1.03	10	-0.64	1.10	10
HIGHLANDS	0.75	1.21	4	-0.34	1.44	4
HILLSBOROUGH	-0.54	1.16	77	-0.14	0.93	71
HOLMES	-0.98	1.87	4	-1.70	0.35	4
INDIAN RIVER	-0.14	1.05	7	-0.78	0.61	7

JACKSON	-0.24	0.96	7	-0.49	0.83	7
JEFFERSON	-0.47	0.03	2	-0.24	0.72	2
LAFAYETTE	1.16		1	-1.05		1
LAKE	0.30	1.14	16	-0.43	0.96	16
LEE	-0.11	1.36	36	0.11	0.92	36
LEON	0.27	1.00	15	0.29	0.75	15
LEVY	0.28	0.93	8	-0.38	0.85	8
LIBERTY	0.22	0.62	2	0.15	0.22	2
MADISON	-0.52	0.79	3	-0.58	0.41	2
MANATEE	0.33	1.31	24	-0.04	1.00	24
MARION	0.45	1.16	16	-0.87	1.17	15
MARTIN	0.42	1.26	8	0.81	0.74	8
MONROE	-0.29	0.69	6	-0.15	0.57	6
NASSAU	0.04	2.60	4	-0.42	0.71	4
OKALOOSA	0.49	1.22	19	-0.09	1.03	18
OKEECHOBEE	-0.26	1.21	4	-0.65	0.57	4
ORANGE	-0.33	1.20	57	0.22	0.85	57
OSCEOLA	0.14	1.38	23	-0.09	0.66	23
PALM BEACH	0.37	1.23	47	0.61	0.95	52
PASCO	0.05	0.94	24	-0.38	0.94	25
PINELLAS	-0.36	1.00	42	-0.31	0.78	42
POLK	-0.16	1.15	39	-0.60	0.97	40
PUTNAM	-0.12	0.40	6	-0.20	0.85	6
SANTA ROSA	0.29	1.46	11	-0.30	0.78	12
SARASOTA	0.54	1.31	22	-0.21	0.75	22
SEMINOLE	-0.12	0.93	18	-0.00	0.78	18
ST. JOHNS	0.64	1.38	14	0.35	1.04	15
ST. LUCIE	0.15	1.23	19	0.10	1.19	19
SUMTER	-0.55	1.04	5	-0.60	0.56	5
SUWANNEE	-0.39	0.23	3	0.28	0.30	3
TAYLOR	0.55	0.22	2	-0.59	0.66	2
UF LAB SCH	-0.28		1	-0.35		1
UNION	-0.11		1	1.67		1
VOLUSIA	-0.27	0.96	19	-1.33	1.20	19
WAKULLA	0.74	0.75	3	-0.21	1.33	3
WALTON	-0.54	0.71	6	-0.56	1.52	6
WASHINGTON	1.97	0.09	2	-0.23	1.06	2
State Average	0.00	1.30	1,053	0.01	1.07	1,061

**Table 6. Mean and Standard Deviation of School the School Component by District:
Grade 9, 2012-13**

	Read		
	Mean	Std.	N
ALACHUA	-0.03	1.21	13
BAKER	1.29		1
BAY	-0.31	1.19	11
BRADFORD	0.83		1
BREVARD	0.45	1.09	25
BROWARD	-0.16	1.46	56
CALHOUN	-0.78	1.57	2
CHARLOTTE	-0.71	1.05	5
CITRUS	0.36	0.81	7
CLAY	0.40	0.95	8
COLLIER	0.68	0.66	17
COLUMBIA	-0.03	0.94	3
DADE	0.41	1.18	103
DEAF/BLIND	0.50	0.63	2
DESOTO	-2.30		1
DIXIE	0.39		1
DOZIER/OKEEC	2.13		1
DUVAL	-0.31	1.14	38
ESCAMBIA	-0.89	1.18	9
FAMU LAB SCH	1.15		1
FAU LAB SCH	0.40		1
FL VIRTUAL	1.96		1
FLAGLER	-0.14	0.20	3
FRANKLIN	-0.32		1
FSU LAB SCH	1.21		1
GADSDEN	-1.48	1.17	4
GILCHRIST	1.90	0.46	2
GLADES	-0.65		1
GULF	-0.06	1.34	2
HAMILTON	-0.68		1
HARDEE	-0.58		1
HENDRY	-0.89	0.61	3
HERNANDO	0.48	1.37	6
HIGHLANDS	-0.75	0.79	4
HILLSBOROUGH	-0.23	1.25	51
HOLMES	-0.44	0.87	4

INDIAN RIVER	0.18	2.41	4
JACKSON	-0.44	0.88	7
JEFFERSON	-1.36		1
LAFAYETTE	0.27		1
LAKE	-0.28	0.96	13
LEE	-0.07	1.09	22
LEON	0.31	1.48	9
LEVY	0.54	1.18	6
LIBERTY	0.47	0.97	2
MADISON	-0.49	0.39	3
MANATEE	0.25	1.52	14
MARION	-0.73	1.38	14
MARTIN	0.10	1.32	7
MONROE	0.53	1.15	4
NASSAU	0.53	0.85	4
OKALOOSA	-0.25	1.46	12
OKEECHOBEE	0.43	0.79	3
ORANGE	0.23	0.79	42
OSCEOLA	0.21	1.03	20
PALM BEACH	-0.16	1.31	44
PASCO	-0.06	1.17	20
PINELLAS	-0.06	1.04	38
POLK	-0.85	1.05	26
PUTNAM	0.15	0.49	5
SANTA ROSA	0.41	1.00	11
SARASOTA	0.14	0.65	13
SEMINOLE	-0.18	1.34	15
ST. JOHNS	0.74	1.33	12
ST. LUCIE	0.08	0.87	13
SUMTER	0.12	0.77	4
SUWANNEE	0.40	0.37	3
TAYLOR	-1.49		1
UF LAB SCH	-1.65		1
UNION	-1.16		1
VOLUSIA	0.03	1.18	15
WAKULLA	0.27		1
WALTON	-0.13	1.22	8
WASHINGTON	-0.30	0.25	3
State Average	0.01	1.19	813

**Table 7. Mean and Standard Deviation of the School Component by District:
Grade 10, 2012-13**

	Read		
	Mean	Std.	N
ALACHUA	-0.02	0.66	11
BAKER	0.09		1
BAY	-0.55	0.83	10
BRADFORD	-0.19	0.46	2
BREVARD	-0.16	0.69	23
BROWARD	0.01	0.72	59
CALHOUN	-0.21	0.18	2
CHARLOTTE	-0.47	0.70	5
CITRUS	0.20	0.38	7
CLAY	0.54	0.41	8
COLLIER	0.14	0.47	18
COLUMBIA	-0.10	0.35	2
DADE	0.29	0.82	95
DEAF/BLIND	0.52	0.47	2
DESOTO	-0.70		1
DIXIE	0.56		1
DOZIER/OKEEC	0.74		1
DUVAL	-0.04	0.73	39
ESCAMBIA	0.05	0.48	10
FAMU LAB SCH	-0.82		1
FL VIRTUAL	-0.05		1
FLAGLER	0.02	0.17	4
FRANKLIN	-0.03		1
FSU LAB SCH	-0.55		1
GADSDEN	-0.80	0.46	3
GILCHRIST	0.79	0.40	2
GLADES	0.78		1
GULF	-0.40	0.67	2
HAMILTON	0.14	0.16	2
HARDEE	0.28		1
HENDRY	-0.41	0.76	4
HERNANDO	-0.78	0.72	5
HIGHLANDS	0.11	0.33	3
HILLSBOROUGH	0.01	0.58	50
HOLMES	-0.02	0.47	4
INDIAN RIVER	0.11	0.59	4

JACKSON	-0.17	0.67	8
JEFFERSON	-0.31	0.06	2
LAFAYETTE	0.04		1
LAKE	-0.06	0.63	13
LEE	-0.30	0.82	25
LEON	-0.30	0.48	9
LEVY	0.09	1.07	5
LIBERTY	-0.59		1
MADISON	-0.77	0.65	2
MANATEE	0.10	0.49	12
MARION	-0.32	0.70	14
MARTIN	0.36	0.47	7
MONROE	-0.23	0.19	4
NASSAU	-0.18	0.31	4
OKALOOSA	-0.22	0.36	13
OKEECHOBEE	-0.12	0.83	4
ORANGE	0.08	0.55	43
OSCEOLA	0.49	0.90	17
PALM BEACH	0.43	0.79	46
PASCO	-0.19	0.75	22
PINELLAS	-0.08	0.50	39
POLK	-0.28	0.56	28
PUTNAM	0.27	0.23	3
SANTA ROSA	-0.06	0.75	9
SARASOTA	-0.19	0.62	12
SEMINOLE	-0.17	0.57	13
ST. JOHNS	0.34	0.95	13
ST. LUCIE	-0.07	0.28	10
SUMTER	-0.17	0.65	5
SUWANNEE	-0.32	0.61	3
TAYLOR	-0.39	0.66	2
UF LAB SCH	0.18		1
UNION	-0.38	0.75	2
VOLUSIA	-0.30	0.74	14
WAKULLA	-0.17	0.66	2
WALTON	-0.59	0.75	5
WASHINGTON	0.10	0.54	3
State Average	0.00	0.70	802