



# GROWTH MODELS

Issues and Advice from the States

A Guide of the  
Statewide Longitudinal Data Systems Grant Program

**July 2012**

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This product of the Institute of Education Sciences (IES) Statewide Longitudinal Data Systems (SLDS) Grant Program was developed with the help of knowledgeable staff from state education agencies and partner organizations. The content of this guide was derived from ongoing work of a working group on growth models coordinated and facilitated by the SLDS Grant Program's State Support Team. The views expressed do not necessarily represent those of the IES SLDS Grant Program.

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The Statewide Longitudinal Data Systems (SLDS) Grant Program was asked by several states to review current growth models with the goal of determining the impact of different models on longitudinal data systems and capturing some best practices that states are using in the implementation process. From July 2011 through February 2012, representatives from Colorado, Arkansas, Ohio, Iowa, Pennsylvania, Delaware, and Florida participated in a working group session and follow-up discussions facilitated by members of the State Support Team (SST).<sup>1</sup> This working group allowed states to more easily discuss and share strategies, best practices, and challenges related to the use of growth models. Specifically, these states have provided the following information to the SST in response to questions about their specific growth model(s) related to:

- types and purposes of growth model(s) used;
- description of model(s) used;
- data elements required for each model; and
- issues and barriers experienced during development, implementation, or use.

## Types of Growth Models

All of the participating states are using a type of student growth model for state or No Child Left Behind (NCLB) accountability such as trajectory, projection, value table, value-added, or student growth percentile model. Most states are also using student growth scores as part of teacher evaluations, or will begin to do so in the near future. Colorado is also using its student growth model to provide information about individual student progress to parents, teachers, and administrators. Table 1 outlines the key characteristics of the five models discussed in this document, along with a list of working group states that use each.

Table 1. Types of growth models, key characteristics, and usage among working group states<sup>2, 3, 4</sup>

	Type of Growth Model				
	Trajectory	Projection	Value table	Value-added	Colorado
<b>Used by</b>	FL	AR, IA, OH, PA	AR, DE, IA	FL, OH, PA	CO, AR
<b>Purpose</b>	Compares individual student performance to proficiency and creates trajectory for student to close achievement gap within 3-4 years	Estimates an individual student's performance in the future based on actual scores from the past	Assigns points to an individual student based on year-to-year movement towards proficiency or maintenance of proficiency	Rates schools based on changes in student performance that are better than expected	Provides information about an individual student's or a group of students' progress to parents, teachers, and administrators
<b>Calculates</b>	Actual or projected growth	Actual or projected growth	Closing of the gap toward proficiency or maintenance of proficiency (if already proficient)	Growth that is better than expected	How much relative growth a student or group of students made
<b>Intended use</b>	Rewards growth that is on target with the trajectory	Rewards growth	Rewards growth	Rewards better than expected growth	Rewards growth

<sup>1</sup> The SST, an initiative of the SLDS Grant Program, is a group of experienced state data systems experts who provide states with direct technical assistance on a wide range of issues to support SLDS development and use.

<sup>2</sup> Council of Chief State School Officers (2005). *Policymakers' Guide to Growth Models for School Accountability: How Do Accountability Models Differ?*

<sup>3</sup> Council of Chief State School Officers (2008). *Implementer's Guide to Growth Models.*

<sup>4</sup> Education Sector Reports (2011). *Growth Models and Accountability: A Recipe for Remaking ESEA.*

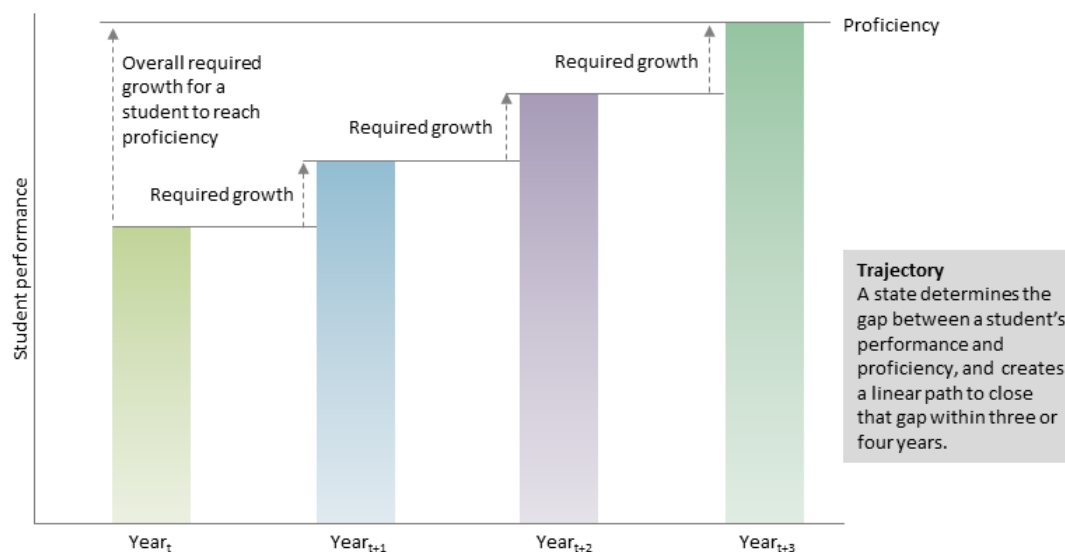
## Trajectory Model

A trajectory model is a growth model based on a student's previous test scores compared to proficiency at a later point in time.

To create a growth trajectory, a state must determine the gap between a student's current achievement level and proficiency.<sup>5</sup> From there, a linear path is created that closes that achievement gap over time. For NCLB compliance, a trajectory model usually requires a student to close that gap over a period of three to four years.<sup>6</sup> In Florida, for example, for the purposes of adequate yearly progress (AYP) determinations, a student can be considered proficient if he/she meets his or her annual target on the path to proficiency, leading to closure of the gap within three years. Each trajectory is built individually for students and is separated for reading and mathematics.<sup>7</sup> This model asks the question: Based on an individual student's previous test scores, will this student be proficient in three or four years? Florida used a trajectory model for AYP determinations beginning in 2007.

Figure 1 depicts a trajectory model. In the figure, the gap between a student's current performance ( $\text{Year}_t$ ) and proficiency is determined, and a linear path to proficiency is created. For each new year ( $\text{Year}_{t+1}$ , etc.), the student must reach that year's required growth in order to be considered proficient for that year.

Figure 1. Trajectory model



## Projection Model

A projection model uses a "projection" or a prediction for each student's performance based on multiple years of an individual student's test scores from the past or cohorts of students' data. The "predicted" score is based on a complex statistical analysis and is used to create a linear growth trajectory for the individual student over a multi-year time period.<sup>8</sup> In some instances, school effects are also taken into account for the projection.<sup>9</sup> Projection models use sophisticated regression formulas to make projections. Some projections use "hierarchical linear modeling," a technique that accounts for statistical effects occurring at multiple levels of aggregation (e.g., classrooms, schools, and districts) in predicting future student achievement.<sup>10</sup>

<sup>5</sup> Education Sector Reports (2011). *Growth Models and Accountability: A Recipe for Remaking ESEA*.

<sup>6</sup> *Ibid.*

<sup>7</sup> Florida Department of Education (2006). *Florida's Application for the NCLB Growth Model Pilot Peer Review Documentation*.

<sup>8</sup> Linear growth models a constant rate of growth.

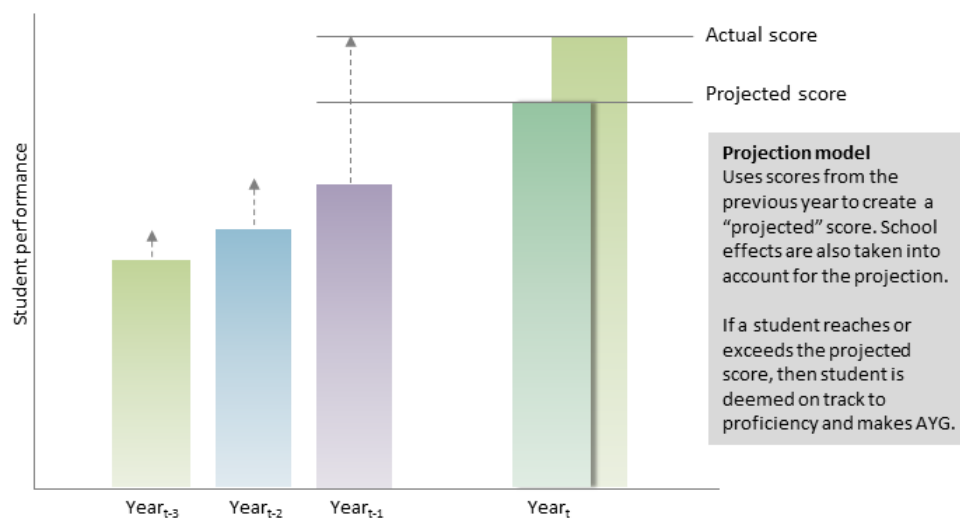
<sup>9</sup> Texas Education Agency (2011). *Procedures for Developing the Texas Projection Measure Equations*.

<sup>10</sup> Education Sector Reports (2011). *Growth Models and Accountability: A Recipe for Remaking ESEA*.

If the student's score demonstrates the level of growth needed for the student to be likely to attain proficiency in the future, then the student is deemed to be on track to proficiency and makes adequate yearly growth (AYG).<sup>11</sup> This model answers the question: Based on how similarly performing students have performed in the past, how is this student projected to perform in the future?

Currently, of the participating states, Arkansas, Iowa, Ohio, and Pennsylvania use the projection model.<sup>12</sup> Figure 2 depicts a projection model. In the figure, the projected score is based on a student's scores from the previous year ( $\text{Year}_{t-3, t-2, t-1}$ ) and school effects. If a student reaches the projected score (i.e., the needed level of growth), then he or she is deemed on track to proficiency and makes AYG.

Figure 2. Projection model



## Value Table Model

A value table model assigns points to a student based on year-to-year movement towards proficiency or maintenance of proficiency. Values are placed in a table to indicate points earned from growth from one year to the next.<sup>13</sup> Schools are rewarded for closing of the gap toward or maintenance of proficiency (if already proficient). Unlike other growth models, the value table model focuses on standards-based performance levels rather than scale scores and is not reliant on any particular score. This model answers the question: Did the student show improvement towards proficiency as compared to their performance level from last year? Arkansas, Iowa, and Delaware are using this model.

Figure 3 depicts a value table model. In the figure, proficiency for a student's performance is tracked from one year ( $\text{Year}_t$ ) to the next ( $\text{Year}_{t+1}$ ) relative to proficiency. Schools are rewarded for closing the gap toward proficiency and maintaining proficiency if already there.

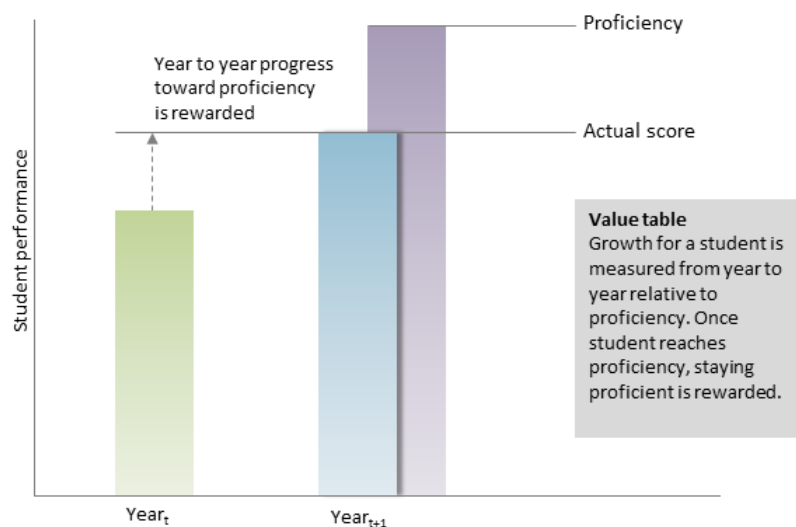
<sup>11</sup> Education Sector Reports (2011). *Growth Models and Accountability: A Recipe for Remaking ESEA*.

<sup>12</sup> The Ohio Growth Model is a projection model. Using Education Value Added Assessment (EVAAS) methodology, students' growth trajectories are projected two years in advance. If the students are not currently proficient, but projected to become proficient, then they are deemed on track.

<sup>13</sup> Council of Chief State School Officers (2005). *Policymakers' Guide to Growth Models for School Accountability: How Do Accountability Models Differ?*



Figure 3. Value table model

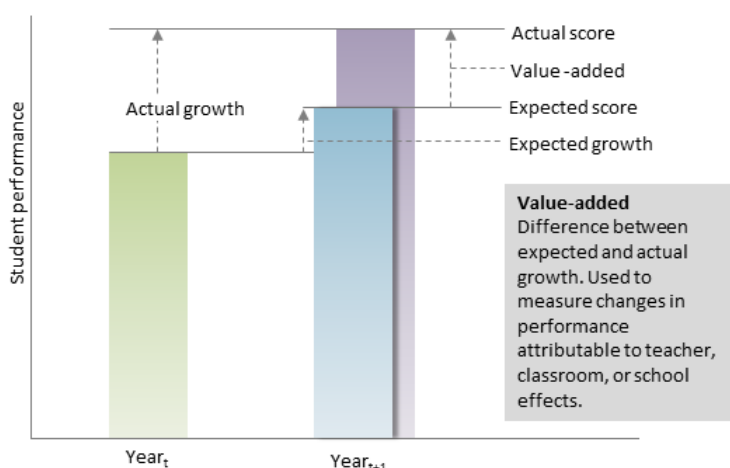


### Value-Added Model

The main purpose of a value-added model is to separate the effects of non-school-related factors (e.g., family and peer influence) from school, classroom, or teacher effects (noted in the figure) at any point in time.<sup>14</sup> This type of model usually measures teacher or school effects, while other growth models may also measure individual student growth. For most value-added models, an equal interval scale such as a Normal Curve Equivalent score is used. This model answers the questions: On average, did the students' change in performance meet the growth expectation? And by how much did the actual growth differ from the expected growth?<sup>15</sup> This model is used by Ohio, Pennsylvania, and Florida.

Figure 4 depicts a value-added model. In the figure, the expected growth and expected scores are estimated based on a student's performance from the previous year (Year<sub>t</sub>). The difference between the expected and actual score (for Year<sub>t+1</sub>) is the "value-added" growth. Positive value-added growth (i.e., growth greater than expected growth) may be rewarded.

Figure 4. Value-added model



<sup>14</sup> Council of Chief State School Officers (2008). *Implementer's Guide to Growth Models*.

<sup>15</sup> Colorado Department of Education (2009). *Learning Center: Public Data Growth Model FAQ*.

## Colorado Growth Model

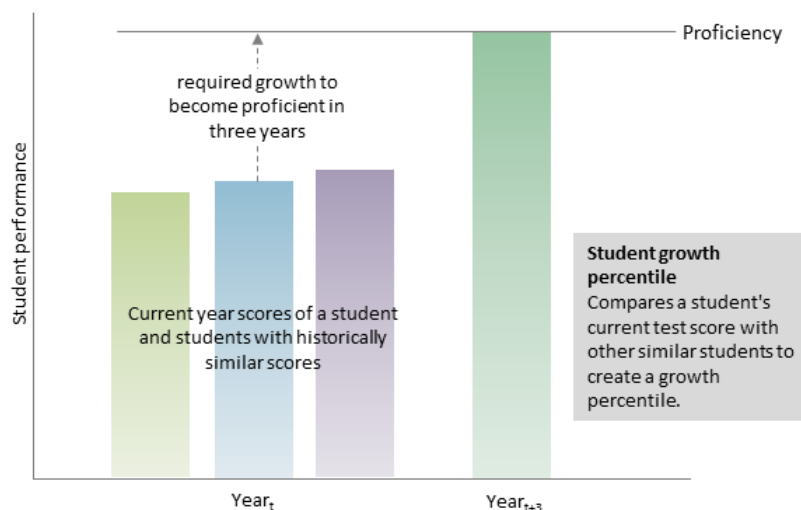
In 2009, after four years of research and development, the Colorado Growth Model was implemented. Rather than examining snapshot scores on the state summative assessment, this model compares a student's progress to that of other students with historically similar scores. The model estimates through quantile regression, essentially by using all of a student's prior scores as predictors of his/her future performance. A student's current score is expressed as a percentile, not of the whole set of scores, but of scores of students that had a set of similar prior scores. Thus a student growth percentile is calculated, showing how academically similar students compared to one another—the concept of “academic peers.” This student growth percentile is interpretable as the percentage of a student's academic peers demonstrating lower scores in the most recent year. This model also shows how much growth is needed for each student to reach proficiency in three years or by tenth grade—whichever comes first.

The Colorado Growth Model answers three questions: What is the growth rate of a student, a school, and a district? What should be the growth rate for a student to reach achievement within a period of time? And what are the highest sustained growth rates that exist today and under what conditions could they improve? Currently, among SLDS states, Colorado and Arkansas have implemented the Colorado Growth Model.

One of the advantages of this model is that it provides individual student growth scores in a readily explainable metric: percentiles. The interpretation of these growth percentiles is relatively straightforward: a student growth percentile of 33 means that 33 percent of this student's academic peers received lower scores on the most recent test. Therefore, 67 percent of this student's academic peers scored higher. This interpretation is already quite useful, but a criterion-referenced interpretation (based on external performance goals<sup>16</sup>) is also available from the model. Such an interpretation requires using past years of data to create projections into the future for current students, so that the model output yields a level of student growth necessary to reach a particular scaled score in a given future grade.

Figure 5 depicts the Colorado Growth Model. A student's individual performance for the current year ( $Year_t$ ) is compared to students with historically similar scores. From there, that student's growth percentile is calculated. A growth rate for that student can also be used to see how much growth is needed for a student to reach proficiency in three years ( $Year_{t+3}$ ).

Figure 5. Colorado Growth Model



<sup>16</sup> Council of Chief State School Officers (2005). *Policy makers' Guide to Growth Models for School Accountability: How Do Accountability Models Differ?*



## Purposes for Growth Model Use

The reasons for using a growth model vary from state to state and, in most cases, the purpose drives the type of growth model chosen. Growth models used for NCLB compliance must be peer-reviewed and approved by the U.S. Department of Education (ED) since they are used by states for accountability purposes. Growth models approved for NCLB compliance include all the growth models introduced in the previous section and listed in Table 2. Other purposes for growth models, in addition to NCLB compliance, include state accountability, teacher evaluation, and individual student comparison. Some states produce additional school accountability ratings using state-determined indicators, one of which may be a growth model. Growth models used solely for the purpose of state accountability do not have to be peer-reviewed or approved by ED. Student growth models are also used by some states in teacher or educator evaluation or as a measure of teacher effectiveness.<sup>17</sup> As Table 2 shows, all five of the models discussed in this document are used for multiple purposes.

Table 2. Purpose and use of growth models

	Purpose/Use of growth model				
	NCLB compliance	State accountability	Teacher evaluation	Individual student comparison	AYP determination
<b>Trajectory</b>	X	X	X	X	X
<b>Projection</b>	X	X	X	X	X
<b>Value table</b>	X	X	X	X	X
<b>Value-added</b>	X	X	X		X
<b>Colorado</b>	X	X	X	X	X

<sup>17</sup> Status models are often contrasted with growth models. A status model, such as AYP under NCLB, takes a snapshot of a subgroup's or school's level of student proficiency at one point in time.

## Essential Data Elements for Types of Growth Models

When designing a growth model, it is important to consider the data elements necessary to produce a student growth score, defined by Common Education Data Standards (CEDS) as “the difference between scores across two or more assessments that is used to indicate the student’s progress over time in achieving the content measured by the examination.” Table 3 includes a subset of data elements and corresponding definitions, following the CEDS nomenclature, used to produce such growth scores. The business rules and algorithms used are specific to each state and model, and have not been included in this document.

Table 3. Data elements required for each growth model

CEDSv2 data element with definition <sup>18</sup>	Type of Growth Model				
	Trajectory	Projection	Value table	Value-added	Colorado
<b>Student Identifier</b> <i>A unique number of alphanumeric code assigned to a student by a school, school system, a state, or other agency or entity.</i>	X	X	X	X	X
<b>Student Growth</b> <i>The difference between scores across 2 or more assessments that is used to indicate the student’s progress over time in achieving the content measured by the examination.</i>	X	X	X	X	X
<b>Assessment Academic Subject</b> <i>The description of the academic content or subject area being evaluated.</i>	X	X	X	X	X
<b>Assessment Performance Level Identifier</b> <i>A unique number or alphanumeric code assigned to an assessment performance level.</i>			X		X <sup>19</sup>
<b>Assessment Performance Level Minimum Cut Score</b> <i>Lowest possible score for the performance level.</i>			X		X
<b>Assessment Performance Level Maximum Cut Score</b> <i>Highest possible score for the performance level.</i>			X		X
<b>Assessment Performance Level Score Metric</b> <i>The metric or scale used for score reporting.</i>			X		X
<b>Assessment Score Results</b> <i>A meaningful raw score or statistical expression of the performance of a person on an administration of an assessment. The results can be expressed as a number, percentile, range, level, etc. The score relates to all scored items or a sub test scoring one aspect of performance on the test.</i>	X	X		X	X
<b>Assessment Score Scale Maximum Value</b> <i>The maximum value for the measurement.</i>	X	X	X	X	X
<b>Assessment Score Scale Minimum Value</b> <i>The minimum value for the measurement.</i>	X	X	X	X	X

<sup>18</sup> Common Education Data Standards, Version 2 (2012). *Elements page*: <http://ceds.ed.gov/elements.aspx>. Retrieved on March 10, 2012.

<sup>19</sup> Required if the criterion-referenced growth results are requested

## Issues and Advice

### Pennsylvania

Pennsylvania uses two models: value-added, which is used for NCLB compliance, state accountability, and teacher evaluation; and projection model, which can be used for individual student comparison.

Pennsylvania's biggest challenge using value-added and projection models is getting stakeholders at the local level to understand the difference between them. While the projection model shows individual projections and calculates performance, the value-added model does not publish specific formulas used in performing calculations to determine growth.

As a result, many school users have had difficulty understanding the results from the value-added model and have become frustrated when they could not replicate the calculations.

To mitigate this challenge, Pennsylvania suggests using professional development to train as many members of the state's team as possible, ideally developing a team of department personnel and stakeholders so that a larger core group has an understanding of the model. Currently, Pennsylvania contracts out all professional development, even though the state would prefer to have in-house staff experts who understand the value-added model. But regardless of whether a state has experts in-house or has to contract them out, Pennsylvania suggests having a panel of experts who can explain the model to all constituents.

Pennsylvania	
<b>Growth models</b>	Value-added Projection
<b>Purpose</b>	<i>Value added:</i> NCLB compliance, state accountability, teacher evaluation  <i>Projection:</i> Individual student comparison

### Delaware

Currently, Delaware is using the value table model for NCLB compliance, state accountability, teacher evaluation, and individual student comparison. Because this model was developed and implemented before Delaware changed its standardized tests, the state is currently facing test validity concerns and measurement error issues, which are causing students to shift between proficiency levels. The state is working to ensure that the test is statistically sound and that the test questions are valid for assessing the student's understanding of a concept. This should help to minimize measurement error and ensure that calculated student proficiency levels are stable. Stable proficiency levels ensure that each student's calculated growth value is sound and, in effect, each aggregated demographic group's growth calculation is also reliable.

Delaware	
<b>Growth models</b>	Value-added Projection
<b>Purpose</b>	<i>Value added:</i> NCLB compliance, state accountability, teacher evaluation  <i>Projection:</i> Individual student comparison

One benefit that Delaware has found using the value table model is that its components are easier to describe to stakeholders than those of other models. In this type of model, values are placed in a simple table to indicate points earned from growth one year to the next. The average growth is then calculated for the school and each subgroup. The average growth value for the school is then compared to the target that was assigned and projected by the model.

Another benefit Delaware noted was that value table models emphasize the importance of growth for students, especially for students who are below proficient but do move towards proficiency. Using the model, a school receives points for growth towards proficiency even if students have not reached proficiency, as compared to other models by which no points are awarded unless students achieve proficiency.

## Arkansas

Arkansas uses three types of growth models (projection, value table, and Colorado) for different purposes. The projection model is used for AYP determination; the value table model for state accountability and determining awards for schools; and the Colorado Growth Model as part of two interactive websites that present scores, proficiency, and growth for evaluative purposes. These data are available at the student, teacher, school, and district level. When determining NCLB accountability for schools, Arkansas gained approval to use a projection model. The state legislature mandated that a value table model be used for state accountability purposes to determine monetary rewards for high growth scores.

One challenge that Arkansas encountered using the projection and value table models is a basic mistrust of growth model data among school and district users. This mistrust relates to how the models measure student proficiency and teacher effectiveness. The models' use of complex equations that cannot be replicated has further exacerbated the problem for Arkansas.

Arkansas has also encountered a challenge using the Colorado Growth Model. For this model, the greater the number of years of data, the more accurate the measure will be. The problem with this is that the growth measures tend to be more accurate for students in higher grades for which more years of assessment data are available. For example, if a state begins measuring growth at grade 4, the state must have grade 2 and grade 3 test scores. By grade 5, the state will have data points from three previous grades. As a result, students in high grade levels may have an advantage because their greater number of data points can be used to calculate growth more accurately.

One benefit Arkansas found using projection and value table models is that these models reward schools for growth—not just for performance. Using linear value of growth also helps schools see where there are specific gaps among students. And, by looking at individual student growth, Arkansas can calculate individual teacher strengths in a subject and, in turn, target professional development on areas of weaker performance.

Arkansas	
<b>Growth models</b>	Projection Value table Colorado
<b>Purpose</b>	<i>Projection:</i> AYP determination  <i>Value table:</i> State accountability  <i>Colorado:</i> Part of two websites that present scores, proficiency, and growth for evaluation

## Ohio

Ohio has utilized district- and school-level Education Value Added Assessment System (EVAAS) models in the state accountability system for several years, and additionally was granted a waiver to utilize a projection model as an alternate pathway to proficiency for AYP purposes. Recently, Ohio's Race to the Top (RTT) plan called for the expansion of value-added analysis to the teacher level. Subsequent state legislation made changes to the teacher evaluation framework, mandating that 50 percent of evaluations consist of student growth measures—requiring the teacher value-added metric when available.

When implementing such measures, it is crucial that the methodology has been shown through research to produce valid and reliable metrics. At the same time, a related challenge is communicating complex concepts, such as the value-added methodology. While the notion of considering “growth and progress” is popular and intuitive, interpreting and using the data requires buy-in from stakeholders and may be more complex than just examining proficiency levels. This is magnified when considered in light of policy and political discussions on educator evaluation, which have raised the stakes for quality and accurate teacher-student data links.

Growth data are used for many purposes, including high stakes accountability and evaluation, but it is crucial that the diagnostic aspects are integrated into the state plan. Ohio strongly recommends that states focus on helping educators use the data to improve instruction and practices. For example, Ohio's value-added system includes data resources and professional development to help teachers integrate these powerful data into their

Ohio	
<b>Growth models</b>	Value-added Projection
<b>Purpose</b>	<i>Value added:</i> NCLB compliance, state accountability, teacher evaluation  <i>Projection:</i> Individual student comparison

decisionmaking processes and strategic planning such as school improvement plans. Teachers can examine diagnostic data to help understand their students' growth patterns and plan differentiated instructional strategies.

Finally, Ohio recommends a coherent communications plan that provides educators with detailed information and resources. This can be difficult with short and changing timelines and complex methodologies, but effective communication is vitally important to ensuring educator buy-in.

## Iowa

Currently, Iowa is using a categorical normative model, but is planning to transition to a projection model. Iowa implemented a categorical normative model for AYP purposes in 2007. Through its use, Iowa found two major drawbacks with this model: (1) only non-proficient students demonstrate growth towards proficiency for AYP, and (2) it is very difficult for students who are not close to the achievement level cut points to reach their expected growth towards proficiency. Through the NCLB waiver process, Iowa plans to implement a projection model with the ability to compare individual students, schools, and districts based on equally weighted proficiency and growth for all students (regardless of achievement level). For the non-proficient students, growth is defined as expected growth toward proficiency, while for proficient students, it is expected growth toward the advanced achievement level. One of the major reasons why Iowa chose the projection model is because this model is easier for stakeholders to understand than other complex growth equations. The projection model will calculate growth for all students (non-proficient and proficient) based on previous performance. In Iowa's proposed accountability model, growth will have greater impact on school determinations, as proficiency and growth are weighted equally in the model.

Iowa	
<b>Growth models</b>	Categorical normative Projection
<b>Purpose</b>	<i>Categorical normative:</i> AYP compliance  <i>Projection:</i> NCLB compliance, student comparison, teacher evaluation, state ac- countability

In Iowa's implementation of growth models, the state has encountered several challenges. For instance, it is more difficult for high-achieving students whose previous test scores were very high to meet the expected growth. Another issue that has surfaced is the inability to calculate growth for certain grade levels. In order to calculate growth in the 2011–12 school year, for example, a student would need to have tested in both 2010–11 and 2011–12. Since Iowa tests students in grades 3 through 8 and again in grade 11, there are no growth scores for all third graders nor for about 20 percent of the 11th graders. Another issue that Iowa foresees using the growth models is the need to vertically scale test scores for all grades. Iowa's current assessments are vertically scaled. However, this will become a critical issue if Iowa switches to a different assessment in future years.

Because growth models are dynamic and definitions vary from model to model, many of the definitions and concepts are subject to change as well. Iowa suggests defining growth models both in conceptual and operational terms. For instance, definitions should be revised as needed in order to maintain alignment with conceptual definitions. For example, if a state changes from a projection model to a value-added model, both conceptual and operational definitions need to change to accurately represent the new model. Once definitions have been defined and clarified, it is crucial for states to communicate those changes to stakeholders.

## Colorado

For Colorado, communicating about its growth model has at times presented a challenge. Because growth models and the application of their results quickly become political issues, it is important to win support for the model among key stakeholders. It is therefore important to communicate with stakeholders (e.g., through focus groups) in the early stages of development so that they have a voice in the matter and do not see the implementation of the model as being something that is done *to* them, but rather as something done collaboratively *with* them.

Colorado	
<b>Growth model</b>	Colorado
<b>Purpose</b>	<i>Colorado:</i> NCLB compliance, student comparison, teacher evaluation, state accountability

School districts in Colorado had been asking for a growth model for several years because they recognized that growth, as opposed to status, was an essential element of the conversation around state assessment results and accountability. When components of the model are simplified and communicated effectively to key stakeholders, it is easier for states to establish understanding and build support for their implementation of a growth model, knowing that going in the direction of growth is



already embraced by the majority of stakeholders. The details of the implementation should not undermine the existing acknowledgement of the importance of measuring student academic growth.

## Florida

Florida currently uses three models: a learning gains model, used for measuring student performance improvement in state school accountability; a trajectory model, which measures AYP for federal school accountability; and a value-added model for teacher and school administrator evaluations. Florida's learning gains model has been used in the state's school grades system of school accountability since 2002. Under this approach, individual student learning gains are determined by comparing each student's prior year test score on the state assessment (Florida Comprehensive Assessment Test (FCAT)) to the current year test score. A student can achieve a learning gain by:

- improving achievement levels in one or more subjects;
- maintaining a proficient achievement level; or
- demonstrating more than one year's worth of growth by improving by a certain number of development scale score points (for students remaining in non-proficient levels).

This approach mainly focuses on standards-based performance levels rather than scale scores, like the value table approach described above. However, unlike value tables, under this approach there is no differentiation in the type of gain. Schools are evaluated based on the percentage of students who make a gain under any of the three methods outlined above. Historically, no gain has been weighted more heavily than another. Beginning in 2012, however, the Florida State Board of Education has adopted policies to provide additional weight to a gain that results in movement into the two highest achievement levels of the state assessment.

A major challenge Florida has faced historically using two different growth models for school accountability—one for the state system of school grades (learning gains) and another for federal AYP determinations (trajectory growth model)—is the difficulty in explaining the policy to stakeholders and the general public. In 2012, Florida was approved for a waiver to Elementary and Secondary Education Act (ESEA) to use the state's system of accountability as a unified version that would serve both purposes, which will ultimately eliminate future confusion. Additionally, Florida suggests limiting the types of models used. The use of multiple growth models for essentially the same purpose (school accountability) has led to confusion among the state's stakeholders.

Beginning in the 2011–12 school year, through both the passage of state legislation and the state's RTT efforts, the evaluation of instructional personnel and school administrators has changed whereby fifty percent of an evaluation must be based on the student performance. To meet that purpose, the state, through the work of a stakeholder committee, developed a value-added model to measure student learning growth on the state assessment. Another issue Florida faced when using the value-added model was developing a model that was transparent and easy to understand, while also being comprehensive enough to ensure fairness (“leveling the playing field”) in the evaluation of educators based on the performance of students. In this effort, the state's committee took a comprehensive approach in exploring eight different types of models, ranging in complexity. Ultimately, the stakeholder committee decided on a covariate adjustment value-added model that statistically controlled for ten different factors. Although the selection of a more comprehensive model would mean the model would be more complex and perhaps more difficult for stakeholders and the general public to understand, it was decided that a simpler model may not capture all of the information deemed important.

Florida notes that communication is key when developing and implementing a model. In the case of the value-added model, a stakeholder committee proved to be a vital part of the development process. In addition to a stakeholder committee, Florida also had statewide meetings, using various presentations and documents to reach the diverse range of stakeholders.

Florida	
<b>Growth models</b>	Learning gains Trajectory Value-added
<b>Purpose</b>	<i>Learning gains:</i> School accountability  <i>Trajectory:</i> AYP for federal accountability  <i>Value-added:</i> teacher and school administrator evaluations



## Resources

Colorado Growth Model: Charting the Course to Postsecondary Readiness (2009). Available via the LDS Share at <http://nces.ed.gov/programs/slds/LDSShare/SLDS.aspx>.

Council of Chief State School Officers (2008). *Implementer's Guide to Growth Models*. Available at [http://ccsso.org/Documents/2008/Implementers\\_Guide\\_to\\_Growth\\_2008.pdf](http://ccsso.org/Documents/2008/Implementers_Guide_to_Growth_2008.pdf).

Council of Chief State School Officers (2010). *Key Elements for Educational Accountability Models in Transition: A Guide for Policymakers*. Available at [http://ccsso.org/Documents/2010/Key\\_Elements\\_for\\_Accountability\\_2010.pdf](http://ccsso.org/Documents/2010/Key_Elements_for_Accountability_2010.pdf).

DuBois Area School District (2007). *Practical Application of Value-Added Growth Model*. Available via the LDS Share at <http://nces.ed.gov/programs/slds/LDSShare/SLDS.aspx>.

Gibson, Neal (2011). *Primer on Growth Models and Their Application*. National Forum on Education Statistics, Professional Development Presentation. Available at [http://nces.ed.gov/forum/ppt/Growth\\_Models.ppt](http://nces.ed.gov/forum/ppt/Growth_Models.ppt).

### Available in the Public Domain Clearinghouse: Colorado Growth Model



The Colorado Growth Model provides a common understanding of how individual students and groups of students progress from year to year toward state standards based on where each individual student begins. The model focuses attention on maximizing student progress over time and reveals where, and among which students, the strongest growth is happening and where it is not. The Colorado Growth Model shines a spotlight on the state's most effective schools and districts—those that produce the highest sustained rates of growth in student progress. These schools and districts may or may not be schools or districts with the highest test scores every year.

For more information about the Colorado Growth Model as well as a link to download the model, visit the Public Domain Clearinghouse (PDC) via GRADS360° (<http://nces.grads360.org>).