

Indiana Accountability A-F Review: Growth Metric Department of Education Data Analysis

Purpose

The purpose of this document is to provide summary analysis and recommendation information concerning the Growth Metric for the Accountability A-F system. The Department has prepared this information based on data analysis performed for the Accountability System Review Panel, annual A-F Accountability data calculation examination, assistance from external Assessment and Accountability experts and additional K-12 insight. Information contained within this report is specific to the selection of the growth metric and does not reflect details of the remainder of the accountability system. Additional knowledge of the accountability system is assumed by the author.

Evaluation of Current Metric

The current Accountability A-F system was implemented in the 2011-12 school year. The Department is currently preparing the third year of grade findings using the 2012 A-F rule. The Department has incorporated stakeholder feedback, Accountability System Review Panel discussion and internal analysis to comprise a list of potential shortcomings with the current growth metric and application within the rule. The following limitations have been identified with the current application of Growth:

- Growth is not a separate metric within the system. Base points are awarded on performance alone and Growth is applied only as a bonus or penalty. Stakeholders cannot easily differentiate performance and growth information.

- The current approach using One Year Projected Targets is deemed unconventional by industry experts. While other states have used forms of targeted growth, the One Year Projected Target has not been found in use elsewhere in the nation.
- The One Year Projected Target outcome is more highly associated to performance status than acceptable as an independent metric.
- The application of Growth Bonuses and Penalties can shift points by 2.0 whole points (or 2 letter grades) compared to performance alone. The bonus/penalty data trend shows schools with generally average performance status can experience bonuses one year and penalties the next, thus swinging the overall grade from an A to an F. While not in conflict with 2013 HEA 1427, One Year Projected Targets are calculated based on annual calculations and therefore are not consistent across years.
- The One Year Projected Target is utilized only in the Accountability A-F system. Other accountability initiatives, including Educator Effectiveness Growth Ratings and Charter School Accountability, use Student Growth Percentiles.

Objectives for Growth

In order to accurately assess the appropriateness of a growth component within the accountability system, the policy objectives for growth must be clearly defined. The use of growth within the accountability system must also comply with state statute. Indiana Code addressed growth in accountability as follows:

- IC 20-31-8-5.4(a)(1) states school performance calculations must be based on individual student growth to proficiency.
- IC 20-31-8-5.4(a)(2) states school performance may not be based on growth compared with peers.

Based upon IC 20-31-8-5.4, the Department of Education proposes to the Accountability System Review Panel the following standards for the growth metric within the accountability system:

- Individual student growth should be utilized in the accountability system.
- Student growth should be a criterion metric within the accountability system.

- Growth should be a metric relatively independent of school performance status. The metric should have low correlation to performance. The data display should clearly illustrate both components.
- Growth should incentivize progress toward proficiency in non-proficient students and continued growth in proficient students.

Growth and Improvement Option Analysis

The Accountability System Review Panel has considered multiple options for the growth domain within the Accountability A-F system. This review includes metrics available in the current Indiana Growth Model as well as analysis of other available growth and improvement options. Two key elements had to be defined to incorporate growth in an accountability system:

- **Growth Measure** Determine which data element should be used to measure student growth in the accountability system. This includes selecting the type of growth to be used as well as the specific data elements.
- **Metric Application** Determine how the data element should be used in the accountability system. This included selecting how the data is translated into points within the accountability system.

The Panel reviewed growth and improvement models through Department presentations, nationally recognized growth and accountability expert testimony, and the published works of leaders in Assessment and Accountability. On November 1, 2013, the Panel recommended the use of Categorical Status Improvement and Targeted Growth as measures in the accountability system. In order to create a values table, the Department and CEI prepared a values exercise in which the Panel members rated possible status change outcomes. The status improvement values table was then used to create and evaluate various point value assignments. Several options were provided to the Panel for review. As part of the iterative analysis process, the Department and CEI refined the sub category cut scores to create more evenly distributed student outcomes.

The Panel requested the Department provide analysis of the application of these measures in the accountability system. Several iterations of data were calculated and presented to the Panel. This included various options for value tables, cut score, category status groups, and growth metrics. Data was prepared and analyzed by using the final 2012 and 2013 A-F student and school data as base information. School ratings using performance and growth data under each option were calculated. School ratings using performance data only were

calculated and used as a comparison point. Official 2012 and 2013 school grades were also used as a comparison point. The impact of growth on performance only ratings was prepared and evaluated under each growth option. In addition, fluctuation between official A-F school grade and rating under each growth option was reviewed.

The following were the options for which the Department and CECI prepared data:

- **Option A: Categorical Status Improvement**
 - Option Description
 - Uses a Categorical Status Improvement value table.
 - Growth component is worth 100 points. The value table includes point assignments over 100, thus creating the opportunity for extra points.
 - Categorical Status Improvement points are awarded based on the prior year category status and current year category status per the value table.
 - Places focus on students improving at least one category every year to receive full points.
 - Negative movement in categories results in low or zero points.
 - Advantages
 - Recognizes growth across all categories.
 - Easy to explain and communicate.
 - Challenges
 - Creates the expectation that all students can and should get a Pass Plus over time.
 - Devalues staying at high levels of proficiency.
 - Focuses only on the 60% of students that transition across a category line. The remaining 40% static within a category are not well represented. Cannot determine growth to proficiency.
 - Categories cannot be refined enough to show incremental movement for all students.
 - Establishes a value system new to Indiana. Status sub-categories, cut-scores and value tables may need re-evaluated throughout assessment transition.
 - Shows high correlations of Growth and Performance status (ELA 0.550,0.597; Math 0.666,0.43) which imply model bias.

- **Option B: Categorical Status Improvement**
 - Option Description
 - Uses a Categorical Status Improvement value table.

- Growth component is worth 100 points. The value table includes point assignments over 100, thus creating the opportunity for extra points.
- Categorical Status Improvement points are awarded based on the prior year category status and current year category status per the value table.
- Places focus on students staying at a passing level or improving at least one category to receive full points.
- Negative movement in categories results in low or zero points.
- Advantages
 - Recognizes growth across all categories.
 - Easy to explain and communicate.
 - Rewards students maintaining a pass status.
- Challenges
 - Devalues staying at high levels of proficiency.
 - Focuses only on the 60% of students that transition across a category line. The remaining 40% static within a category are not well represented. Cannot determine growth to proficiency.
 - Categories cannot be refined enough to show incremental movement for all students.
 - Establishes a value system new to Indiana. Status sub-categories, cut-scores and value tables may need re-evaluated throughout assessment transition.
 - Shows high correlations of Growth and Performance status (ELA 0.750,0.597; Math 0.768,0.43) which imply model bias.
- **Option C: Categorical Status Improvement and Targeted Growth**
 - Option Description
 - Uses both Categorical Status Improvement and Targeted Growth value tables.
 - Growth component is worth 100 points. The value table includes point assignments over 100, thus creating the opportunity for extra points.
 - For students transitioning a category, Categorical Status Improvement points are awarded based on the prior year category status and current year category status per the value table.
 - For students static in a category, Targeted Growth points are awarded. Targeted Growth utilizes the Indiana Growth Model analyses. A target was calculated for each prior year category status using the mean growth required for a student to keep up or move up a category. Points are

- awarded based on the prior year category status and the current year observed growth.
- Places focus on students improving at least one category or showing trajectory to increase one level to receive full points.
 - Negative category movement or negative trajectory results in low or zero points.
- Advantages
 - Highly rewards growth that occurs infrequently.
 - Highly deincentivizes “negative” growth (dropping one or more category) and “negative” trajectory (on path to drop one or more category).
 - Allows detail of growth for the 40% of students that do not have a categorical status change.
 - Shows lower correlation of growth and performance status (ELA 0.365; Math 0.217) within acceptable thresholds.
 - Challenges
 - Complicated to display or explain.
 - Different metrics for students results in very small subgroups that may fall below the minimum required student count.
 - Establishes a value system new to Indiana. Status sub-categories, cut-scores and value tables may need re-evaluated throughout assessment transition.
- **Option D: Observed Growth**
 - Option Description
 - Uses Observed Growth.
 - Growth component is worth 100 points. The value table includes point assignments over 100, thus creating the opportunity for extra points.
 - Student points are awarded based using prior year category status to determine growth ranges for current year Observed Growth. Points are awarded per range.
 - Observed Growth utilizes the Indiana Growth Model Student Growth Percentile (SGP) analysis using baseline calculations.
 - Observed Growth target ranges were established using mean data analysis for each category status. Data analysis showed students in lower starting categories require less growth to move up categories.
 - Places focus on students showing growth in all categories to receive full points.
 - Negative growth results in low or zero points.

- Advantages
 - Easy to explain and display.
 - Uses Indiana Growth Model analyses.
 - Shows lower correlation of growth and performance status (0.28; 0.25) within acceptable thresholds.
 - Incorporates the reliability of a robust growth model calculation in a value table to translate data into points.
 - Uses baseline analysis to establish criterion metrics.
 - Values high levels of proficiency.
- Challenges
 - Uses Indiana Growth Model analyses which is perceived as complicated.
 - Establishes a value system new to Indiana. Target growth ranges and values may need re-evaluated throughout assessment transition.

Recommendation

The Department has prepared data and evaluated outcomes for the various components of Growth considered throughout the Accountability System Review Panel process. CECI staff and external experts in Assessment and Accountability have engaged during the process to ensure due diligence in the multiple iteration of data analysis. Careful consideration was given to each model option to gauge system stability and alignment with policy objectives. The Department provides the following recommendation for Growth in the Accountability A-F System as the most stable and policy aligned option:

- The Accountability A-F System should utilize a growth measure from the Indiana Growth Model analyses.
- The growth measure should be Observed Growth, baseline Student Growth Percentile (SGP) calculations, to meet the criterion data requirement under IC 20-31-8-5.4(a)(2).
- Observed Growth should be included as an individual student calculation metric application, not a mean or median school calculation, to meet the individual student requirement under IC 20-31-8-5.4(a)(1).
- Observed Growth should be applied to school accountability as outlined in Option D.
- Due to assessment transitions, robust baseline analyses will not be available until 2016-17. A transition plan should be incorporated in rule to provide data in the interim.

- Additional accountability components, including Educator Effectiveness Growth Ratings, should be evaluated for potential alignment to Observed Growth where available.

Commentary from Wesley Bruce:

Of the four options outlined in this paper, option D is the preferred, while more complex than A or B, it is more straight forward than option C. Option D has a set of student growth expectations that are known beforehand (unlike option C). Most importantly the relatively low reported correlations between performance and growth in option D provides schools and districts with the assurance that student growth can be demonstrated almost anywhere along the performance continuum.