Types of Growth Models Evaluated in Texas

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In making the decision about the model to propose to the United States Department of Education (USDE), the Texas Education Agency (TEA) evaluated models that represented the types of models approved by USDE for state use in Adequate Yearly Progress (AYP) calculations. The types of models TEA evaluated are summarized below.

MODEL TYPE	USDE APPROVED STATES	DESCRIPTION
Growth to Proficiency or Growth to Standards	Alaska Arizona Arkansas Florida Iowa Missouri North Carolina	**Description of Model Type** ➢ Models inform about whether students are on track to meet the proficiency standard in some specified point in the future ➢ The number of years states specify varies, but is typically 3 or 4 years ➢ Models focus on score changes over past years **Use in AYP** ➢ In AYP calculations, campuses given credit for students who have not yet passed but are making score gains such that the students will pass by the third or fourth year if score gains continue **Inclusion of Students** ➢ In general, this method will allow growth to be reported on most students **Accuracy and Reliability** ➢ Moderate reliability in decisions about meeting growth targets **Replication/Verification** ➢ Fully transparent ➢ Can be easily replicated and verified by campuses and districts **Instructional Value** ➢ Since the model focuses on score changes in only one content area and the calculations are transparent, educators will be able to easily understand how score changes due to instructional practices impact the growth measure **Reports** ➢ Student growth could be provided on confidential student reports on current reporting schedule **Costs** ➢ Lower costs, approximately $400,000 to $600,000 per year **Applicability to Statute and Rule** ➢ Would meet state statute **Model Evaluated in Texas** ➢ Reaching the Standard Model

MODEL TYPE	USDE APPROVED STATES	DESCRIPTION
Value Tables or Transition Tables	Delaware Michigan	**Description of Model Type** ➢ Models evaluate student transitions across performance levels (i.e., Did Not Meet Standard, Met Standard, Commended Performance) or subdivisions of performance levels (e.g., Low Met Standard, Medium Met Standard, High Met Standard) ➢ Models focus on student changes over 2 years ➢ States using these models subdivide performance levels and expect students to progress across performance sub-levels in such a way that students reach proficiency in a set number of years (typically 3 or 4) **Use in AYP** ➢ In AYP calculations, campuses are awarded credit for moving students into higher levels/sub-levels during the school year **Inclusion of Students** ➢ This model will provide growth information for all students with scores in two consecutive years on the same assessment **Accuracy and Reliability** ➢ Moderate reliability in decisions about meeting growth targets **Replication / Verification** ➢ Fully transparent ➢ Can be replicated and verified by campuses and districts **Instructional Value** ➢ Since the model focuses on performance sub-level changes in only one content area, educators will be able to easily understand how score changes due to instructional practices impact the growth measure; however reported progress information is limited to changes across sub-levels **Reports** ➢ Student growth could be provided on confidential student reports on current reporting schedule **Costs** ➢ Similar costs to growth to proficiency type models ➢ Costs for implementing this model for the TAKS-Alt assessment included in costs for the Texas Projection Measure (TPM) **Applicability to Statute and Rule** ➢ These models would meet state statute ➢ Growth reported at the student level restricted to transitions across sub-levels, so student-level information less specific than what could be reported with other models **Model Evaluated in Texas** ➢ Texas evaluated and proposed a model of this type for students taking the TAKS-Alt

MODEL TYPE	USDE APPROVED STATES	DESCRIPTION
Regression-Based	Ohio Tennessee	**Description of Model Type** ➢ These models project student performance in the future ➢ These models use sophisticated regression formulas with which to make projections ➢ Using these models, states project separately for reading and mathematics ➢ These models use student scores in all content areas and all past years in projections ➢ These models use school-level performance, but not school-level means specifically, in projections **Use in AYP** ➢ In AYP calculations, campuses are given credit with these growth models for students who are projected to reach proficiency in the future (typically 3 years) **Inclusion of Students** ➢ This model will provide projections for slightly more students than the Texas Projection Measure **Accuracy and Reliability** ➢ Moderate to high accuracy (see Appendix 1 for a comparison of accuracy for the two regression-based models) in projecting student performance in the future **Replication/Verification** ➢ General formulas are published, but calculations are not transparent ➢ Cannot be reproduced at the state, district, or campus level ➢ Verification of results limited **Instructional Value** ➢ Since the model makes predictions using scores from all content areas and years, educators will have a difficult time understanding how score changes in one content area due to instructional practices relate to projections **Reports** ➢ Student projections could not be provided on confidential student reports on current reporting schedule ➢ Reports would be provided during summer ➢ Extensive online reports available the first year **Costs** ➢ Higher costs, at least $500,000 and up to $5.4 million ($2 per student tested): Tennessee reported costs at $3.50-$4.00 per student when teacher pricing was included **Applicability to Statute and Rule** ➢ Would meet state statute **Model Evaluated in Texas** ➢ Texas evaluated this model using 2004-2007 statewide datasets SAS Education Value Added Assessment System (EVAAS®)

MODEL TYPE	USDE APPROVED STATES	DESCRIPTION
Regression-Based	Proposed in Texas	**Description of Model Type** ➢ This model projects student performance in one, two, or three years in the future ➢ This model uses sophisticated regression models to make projections ➢ Texas will project performance separately for reading and mathematics ➢ This model uses student scores in current-year content areas in predictions ➢ This model uses school-level performance in the form of school-level means in predictions **Use in AYP** ➢ In AYP calculations, campuses are given credit with these growth models for students who are predicted to reach proficiency in one, two, or three years **Inclusion of Students** ➢ This model will provide projections for all students with current-year scores in reading/English language arts and mathematics taken in the same language ➢ Most students will receive projections; however, projections will be provided for slightly fewer students than anticipated with the EVAAS® projection model **Accuracy and Reliability** ➢ Moderate to high accuracy (see Appendix 1 for a comparison of accuracy for the two regression-based models) in projecting student performance in the future ➢ Prediction accuracy shown to be similar to the regression-based models that predict using all student scores in all content areas and all prior years **Replication/Verification** ➢ Fully transparent ➢ Can be replicated and verified by campuses, districts, and the state **Instructional Value** ➢ Since the model projects using scores in two content areas and the formulas will be publicly available, educators will be able to understand how score changes due to instructional practices impact the projection measure **Reports** ➢ Student growth could be provided on confidential student reports on current reporting schedule ➢ Limited reporting first year; extensive online reporting options for the second year **Costs** ➢ Lower costs, approximately $400,000 to $600,000 per year **Applicability to Statute and Rule** ➢ These models would meet state statute **Model Evaluated in Texas** ➢ Texas evaluated this model using 2007 and 2008 statewide datasets ➢ A version of this type of model has been used by Dallas ISD since 1992

Appendix 1

The prediction accuracy of the Texas Projection Measure was directly compared with the EVAAS® model that includes test data from all content areas for each student over four years. Results indicate that the percents of students who were accurately predicted to meet the standard and who were accurately predicted to not meet the standard were similar for the two projection methods. Specifically, for the eight comparisons of accurate prediction percents in Table A1, three were exactly the same, four differed by one percentage point, and one differed by two percentage points. Two of the five comparisons that differed indicated that the Texas model was more accurate than the more complex model.

Table A1. Prediction Accuracy for Texas Projection Measure and EVAAS® Regression-Based Model

PREDICTION YEAR, GRADE, AND SUBJECT	TEXAS MODEL			MORE COMPLEX MODEL		
	N	Perfect Agreement Met Standard	Perfect Agreement Did Not Meet Standard	N	Perfect Agreement Met Standard	Perfect Agreement Did Not Meet Standard
2008 Grade 8 Reading	270,700	94	2	269,015	94	2
2008 Grade 8 Mathematics	269,675	73	13	267,540	73	14
2008 Grade 11 English Language Arts	222,603	93	1	225,923	92	3
2008 Grade 11 Mathematics	224,341	79	10	228,110	78	11