

Review of the Hybrid Model for Non-Typical Grade Configurations

Rick Guyer, PhD

Overview

There were 108 schools in Arizona that received two letter grades using the A-F accountability model. A hybrid model was proposed that merged the K-8 and 9-12 A-F letter grades with the following specifications:

- A. Schools without Grade 12 adopt the K-8 model (**Merge to K-8**)
- B. Schools that include Grade 12 but begin with the 5th grade or higher adopt the 9-12 model (**Merge to 9-12**)
- C. Schools with Grades K/1/2/3/4 to 12 use both K-8 and 9-12 models (**Prorate K-8 and 9-12 grades using FAY enrollment**)
 1. Schools with one grade and an NR adopt Model A or B as appropriate (Merge to Grade available)

There were 7 schools merged to the K-8 model, 55 that merged to the 9-12 model, and 46 prorated using FAY enrollment.

Missing Data

The hybrid method provides a data consolidation method to estimate an A-F letter grade when some of the K-8 and/or 9-12 data would otherwise be missing. The merged proficiency and growth scores only require 20 FAY students to meet the A-F sample requirements.

Estimation of Models A and B

Obtain a single growth score: The ELA and Math SGP and SGT scores were combined for K-8 and 9-12 using the SGP and SGT FAY enrollments. Required complete data for K-8 and/or 9-12.

Result. Growth scores were out of 50 (Model A) or 20 (Model B) possible points.

Obtain a single proficiency score: The “proficiencyrate” variable and proficiency FAY enrollments were used to merge proficiency scores across K-8 and 9-12 students. Proficiency rate was comparatively the most equitable from K-8 (three years factored into proficiency) to 9-12 (prior year only).

Result. Proficiency data from K-8 and/or 9-12 merged into a score out of 30 (scores above 30 truncated).

Model Estimation

Estimate Model A. Merged growth (50), merged proficiency (30), ELL Proficiency and Growth (10)*, and Acceleration and Readiness indicators (10). Requisite: 80 points.

or

Estimate Model B. Merged growth (20), merged proficiency (30), ELL Proficiency and Growth (10)*, Graduation Rate (20), and College and Career Readiness (20). Requisite: 50 points.

*No school qualified for an ELL merger due to low FAY N (variable "TotalNumberELFayStudents").

Model C. Prorate scores

The K-8 and 9-12 Proficiency FAY counts were used with the K-8 and 9-12 percent points earned in the A-F model to calculate a weighted percentage.

Model C.1

If a combined school is rated on the K-8 or 9-12 models only, proficiency, growth, and ELL scores (as available) are merged to calculate a letter grade. The A-F letter grade utilizes the merged proficiency, growth, and ELL measures along with the model-specific measures for the configuration that received a letter grade in the calculation process.

This proposed method would use all available data to provide the most appropriate letter grade. It effectively requires adopting Model A or B when one configuration does not provide sufficient data to estimate a letter grade.

Results

The Arizona Department of Education (ADE) provided the TAC with complete and corrected SGP and SGT cell values. Dr. Fletcher of the ADE discussed the SGT calculation during the December 4th board meeting during Agenda item 4A4 (see Pages 196 and 221 of the Agenda).

The new data files were in response to:

- 1) SGT calculation
- 2) Missing SGP and SGT cell data due to low FAY count

SGP and SGT scores were re-calculated by the author to update the grades for merger into the hybrid/prorate models.

Letter grades were re-calculated for the models below. These grades are preliminary and do not include the results of the additional modeling performed by the TAC. Grade results show the effects of the hybrid model in merging letter grades.

**Hybrid Model:
Preliminary Results**

Table 1. Merge to K-8 Preliminary Results (Model A)

Schools	Current K-8	Current 9-12	Prelim. Hybrid
1	NR	NR	NR
1	C	NR	B*
2	F	NR	F
1	B	C	B
1	C	B	B
1	B	A	A

*Increased 9-12 proficiency raised grade

Table 2. Merge to 9-12 Preliminary Results (Model B)

Schools	Current K-8	Current 9-12	Prelim. Hybrid
4	NR	NR	NR – 3 F – 1
2	NR	C	C
2	NR	B	B
1	C	NR	C
1	F	B	B
1	F	C	C
2	D	B	B
1	C	A	B
4	C	A	A
1	F	F	F
3	F	D	D
2	D	D	D – 1 C – 1
4	D	C	C
2	C	C	C
1	B	C	B
1	B	C	C
7	C	B	B
3	B	B	B
2	A	B	B
7	B	A	A
4	A	A	A

Table 3. Preliminary Results for Prorated Schools

Schools	Current K-8	Current 9-12	Prorated Grade 9-12 Cuts	Hybrid Merge K-8 Cuts
11	NR	NR	NR	NR
1	A	NR		A
3	B	NR		B
1	C	NR		B
2	C	NR		C
1	C	NR		D
1	D	NR		D
<hr/>				
1	F	C	D	
1	B	D	C	
1	C	A	B	
1	A	C	B	
<hr/>				
1	F	F	D	
2	D	F	D	
1	D	D	D	
2	C	D	C	
1	C	C	C	
3	B	C	B – 2 C – 1	
1	C	B	C	
2	B	B	B	
2	A	B	B	
3	B	A	A – 2 B – 1	
4	A	A	A	

Table 4. School Configuration Distribution

Schools	Config.	Model
40	K to 12	Prorate
1	1 to 12	Prorate
1	2 to 12	Prorate
2	3 to 12	Prorate
2	4 to 12	Prorate
<hr/>		
7	5 to 12	Merge HS
20	6 to 12	Merge HS
28	7 to 12	Merge HS
<hr/>		
1	K to 10	Merge K-8
1	4 to 11	Merge K-8
1	6 to 10	Merge K-8
2	6 to 11	Merge K-8
2	7 to 11	Merge K-8

Definition of Table Variables:

Schools: Number of schools with the current grade profile. Results for Hybrid and Prorate are identified in their cells.

Current K-8: Current letter grade for the K-8 model

Current 9-12: Current letter grade for the 9-12 model

Prelim. Hybrid: Hybrid model fit using merged proficiency and growth. Grade determined using cutscores appropriate to the model merged into.

Grade 9-12 Cuts: Letter grade determined using the 9-12 model cutscores

Hybrid Merge K-8 Cuts: Letter grade using the K-8 model cutscores for schools with 9-12 grade missing and Model A adopted.