Arizona State Board of Education
Technical Advisory Committee

NOTICE OF PUBLIC MEETING

Pursuant to Arizona Revised Statutes (A.R.S.) § 38-431.02, notice is hereby given to members of the State Board of Education Technical Advisory Committee (the "Committee"), and to the general public, that the Committee will hold a meeting open to the public on **Friday, January 5, 2018, at 2:00 PM, at the Arizona Department of Education, Room 122, 1535 W. Jefferson, Phoenix, Arizona 85007.** A copy of the agenda is attached. The Committee reserves the right to change the order of items on the agenda, with the exception of public hearings. One or more Committee members may participate telephonically.

Pursuant to A.R.S. § 38-431.02(H), the Committee may discuss and take action concerning any matter listed on the agenda.

Pursuant to A.R.S. § 38-431.03(A)(3), the Committee may vote to convene in executive session, which will not be open to the public, for legal advice concerning any item on the agenda.

Persons with a disability may request a reasonable accommodation such as a sign language interpreter, by contacting the State Board Office at (602) 542-5057. Requests should be made as early as possible to allow time to arrange the accommodation.

DATED AND POSTED this 29th day of December, 2017.

By: _____

Alicia Williams
Executive Director
(602) 542-5057

AGENDA
TECHNICAL ADVISORY COMMITTEE
Friday, January 5, 2018
2:00 PM
Arizona Department of Education, Room 122
1535 W. Jefferson
Phoenix, AZ 85007

2:00 PM   CALL TO ORDER AND ROLL CALL

1. CALL TO THE PUBLIC: This is the time for the public to comment. Members of the Committee may not discuss items that are not specifically identified on the agenda. Therefore, pursuant to A.R.S. 38-431.01(H), action taken as a result of public comment will be limited to directing staff to study the matter, responding to any criticism or scheduling the matter for further consideration and decision at a later date.

2. Presentation and discussion of the Technical Advisory Committee's recommendations to the State Board of Education including:

    a. "Ceiling Effect" on the Student Growth to Target (SGT) side of the growth measure, in regard to rewarding students as "Excelling Target"
    b. Changing the denominator of the K-8 Acceleration measure to "points eligible"
    c. Lowering the n-count of the English Language Learner measure
    d. Utilizing the hybrid model for non-typical grade configurations and determining how to prorate schools with a score of "Not Rated" (NR)
    e. Continued investigation of the Free and Reduced Lunch (FRL) correlation
    f. Creation of a report on additional risk factors that may be added to future iterations of the A-F Accountability System

3. FUTURE MEETING DATES AND ITEMS FOR FUTURE AGENDAS. The Executive Director or a member of the Committee may discuss future meeting dates and direct staff to place matters on a future agenda.

Adjourn

Lowering the N-Count of the English Language Learner Measure

Data Calculations:

Versions 3.1 of the data files for K-8 and 9-12, provided by the Arizona Department of Education on 12/14/17, were used for these calculations.

Findings:

Number of FAY ELL Students	Number of K-8 Schools	Number of High Schools	Total Number of Schools
11	27	9	36
12	31	5	36
13	29	4	33
14	25	5	30
15	17	4	21
16	22	2	24
17	24	4	28
18	17	2	19
19	25	4	29
Totals	217	39	256

Discussion:

The weighting of English Language Learner proficiency and growth indicator is 10% of each framework.

When discussing n-count for the other measures, the Technical Advisory Committee cited multiple technical reasons not to lower the number of students used for a school to be eligible to earn those points. Those reasons do not change for calculation of the English Language Learner measure.

Accelerated Readiness K-8

The displayed Accelerated Readiness table modified from the A to F Business Rules to clarify how points are earned. The size and grade configured type of schools may have numerous ways of earning the full 10 points possible or very few options in the overall letter grade calculation. All schools with less than 20 FAY students tested are not rated with a letter grade and cannot calculate the Acceleration Readiness points due to n-count <20.

It appears that the Ad Hoc Committee and the Accountability Advisory Group took into consideration that there are a wide variety of schools of different sizes and types. The design of the Acceleration Readiness was to provide schools multiple ways of earning points and to capture possible data points for smaller schools.

Metric	N-size of 20 or more FAY students to be eligible	Points Available to Earn	
Grades 5, 6, 7, 8 HS EOC Math		5	All schools with grades 5-8. Very view K-5, K-6 schools will have student in EOC courses and will never meet this metric.
Grade 3 ELA Minimally Proficient	Schools with 20 or more students tested enrolled FAY	5	All middle schools do not have this metric.
Chronic Absenteeism	Schools with 20 or more students tested enrolled FAY	2	All Schools have this metric.
Subgroup Improvement	By subgroup • 7 ethnicity groups • ELL • SPED • FRL Total of 20 possible; 10 ELA and 10 Math for large schools with much diversity	2 points per subgroup up to 6 points total (total of 40 points possible but limited to 6 points maximum)	Small schools with limited diversity may not be eligible or the number of subgroup eligibility is 8 or less.
Special Education Inclusion	Schools with 20 or more students tested enrolled FAY	2	All schools have this metric.

The following tables show the distribution of school letter grades by points possible for each of the Acceleration Readiness areas. Schools with less than 20 FAY students tested are not included. Schools with less than 20 students are not rated with this model.

In the EOC Math table, 673 schools are not eligible for the 5 points due to grade level configuration or schools do not have students in grades 5, 6, and 7 enrolled in EOC Math classes. The 5 points are all or nothing.

EOC Math - Distribution of Schools by Letter Grade							
Points Possible	A	B	C	D	F	NR	# of Schools
0	150	254	183	55	9	22	673
5	94	246	240	121	37	12	750
Schools	244	500	423	176	46	34	1423

The Grade 3 ELA MP Decrease table shows the distribution of schools by letter grade and points possible. Schools that do serve grade 3 students are not eligible for the 5 possible points. In addition, some schools that do serve grade 3 are not eligible because the n-count is less than 20.

Grade 3 ELA MP Decrease - Distribution of Schools by Letter Grade							
Points Possible	A	B	C	D	F	NR	# of Schools
0	32	78	98	56	18	2	284
5	212	422	325	120	28	32	1139
Total Schools	244	500	423	176	46	34	1423

This is the first of two tables displaying Subgroup Improvement Distributions. The maximum number of points possible for this category is six. Small schools with much diversity may not be eligible for any Subgroup Improvement Points. Small schools with more than 20 students in one ethnic category are limited to 4 points possible.

Subgroup Improvement - Distribution of Schools by Letter Grade							
Points Possible	A	B	C	D	F	NR	# of Schools
0	1	1	2			13	17
4	9	12	16	5	4	14	60
6	234	487	405	171	42	7	1346
Total Schools	244	500	423	176	46	34	1423

The second of the two Subgroup Improvement tables show the actual points possible for all schools if there was not a cap of 6 points.

Subgroup Improvement - Distribution of Schools by Letter Grade							
Complete Points Possible	A	B	C	D	F	NR	# of Schools
0	1	1	2			13	17
4	9	12	16	5	4	14	60
6		1					1
8	20	37	34	26	12	5	134
12	38	86	65	31	15	1	236
14	1						1
16	89	156	116	39	7	1	408
18			1				1

								Total
20	52	102	78	33	3			268
24	20	64	63	30	4			181
26			1					1
28	14	35	32	8	1			90
30				1				1
32		4	13	3				20
36		2	2					4
Total Schools	244	500	423	176	46	34		1423

- As explained in the table schools can earn up to 20 points for Accelerated Readiness but the limit for letter grade is 10 points.
- Large diverse schools that include grades 3 through 8 have the most options to obtain the 10 points.
- A few schools do not include grade 3 and grades 7 and 8. Very few schools offer EOC Math courses for students in grades 5 and 6.
- A few schools are limited in the Subgroup Improvement points.
  - Eight schools do not get EOC Math points and Subgroup Improvement points due to n-count and grade configuration of the schools.
  - Eleven schools do not get the EOC Math and Grade 3 MP Decrease but can get the full 6 points for Subgroup Improvement.
    - Actual total points possible for these 11 schools ranges from 8 to 28 but limited to 6.
    - Two of the 11 had 8 total possible Subgroup Improvement points.
    - One of the two did get the points and the other school did not.

Overall Acceleration Readiness Points

The table is a breakdown of total Acceleration Readiness points earned broken down by the sized of schools.

	Number of Schools by Total Acceleration Readiness Points Earned									
# Tested	0 Points	2 Points	4 Points	5 Points	6 Points	7 Points	8 Points	9 Points	10 Points	Total
20 to 49	8	13	13	1	18		8		3	64
50 to 99	6	10	11	1	10	3	21	3	36	101
100 to 199	8	4	12	1	25	1	39	9	139	238
200 to 299	8	4	8		34	5	59	11	205	334
300 to 399	1	3	2		29	1	70	3	161	270
400 to 499	2	2	3		12		29	5	101	154
500 to 599				1	5		8	2	84	100
600 to 699				1	1	1	4	2	42	51
700 to 799					1		3		41	45
800 to 899				1	1	1	1		21	25
900 to 999							2		20	22
1000 to 1300									19	19
Total	33	36	51	4	136	12	244	35	872	1423

Breakdown of school size and current calculated letter grades.

| # Tested | Number of Schools by Letter Grade | | | | | | |
	A	B	C	D	F	NR	Total
20 to 49	6	5	11	5	7	30	64
50 to 99	10	28	29	21	11	2	101
100 to 199	32	85	76	31	13	1	238
200 to 299	65	140	92	32	4	1	334
300 to 399	56	94	83	31	6		270
400 to 499	31	59	45	17	2		154
500 to 599	17	37	32	14			100
600 to 699	11	15	19	6			51
700 to 799	7	14	12	12			45
800 to 899	5	5	10	2	3		25
900 to 999	3	9	7	3			22
1000 to 1300	1	9	7	2			19
Total	244	500	423	176	46	34	1423

In the Acceleration Readiness category, schools could earn up to 20 points depending upon size and grade level configuration. This last table shows the total points that schools are eligible for in the current model in relation to the actual points earned for the final letter grade calculation. The points for Acceleration Readiness are capped at 10.

- Nine schools are limited to 9 points possible. The nine schools limited to 9 points possible are not rated. The nine schools number of FAY students tested ranges from 20 to 32.
- Another 11 schools are limited to 10 total possible points.

| Points Eligible | Acceleration Readiness Points Earned | | | | | | | | | |
	0 Points	2 Points	4 Points	5 Points	6 Points	7 Points	8 Points	9 Points	10 Points	Total
9	2	5	2							9
10	2	1			3		4		1	11
13	4	5	10	2	8		1	3	7	40
14	3	2	1							6
15	12	11	24	2	85	3	155	23	550	865
18	2	4	3		6	1	1	1	2	20
20	8	8	10		32	7	78	6	270	419
Total	33	36	50	4	134	11	239	33	830	1370

Schools that are eligible for 10 points or more can earn the full 10 points. Initial observations seems to indicate that the larger the school and the more diverse the more likely that the school will earn the full 10 points. All schools with 34 or more students FAY tested on the AzMERIT are eligible for the 10 points in the current 2017 letter grade model.

| Number of Schools by Total Acceleration Points Possible by Letter Grade | | | | | | | |
Points Possible	A	B	C	D	F	NR	Total
10	2	2	3	2		2	11
13	7	8	10	3	3	9	40

14			2			4	6
15	167	318	252	100	24	4	865
18	2	4	6	2	1	5	20
20	54	152	131	63	18	1	419
Total	232	484	404	170	46	25	1361

<u>Review of the Hybrid Model for Non-Typical Grade Configurations</u>

<u>Rick Guyer, PhD</u>

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)**

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.

Adapted Model C

If a combined school is rated on the K-8 or 9-12 models only, it is proposed to merge proficiency, growth, and ELL scores (as available) to calculate a merged letter grade. The A-F letter grade would utilize the merged proficiency, growth, and ELL measures along with the model-specific measures 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

Letter grades were calculated for the three 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 merge versus prorate methods.

Hybrid Model:

Preliminary Results

Table 1. Merge to K-8 Preliminary Results

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

*Increased 9-12 proficiency raised grade

Table 2. Merge to 9-12 Preliminary Results

Schools	Current K-8	Current 9-12	Prelim. Hybrid	Comparison Prorated
4	NR	NR	NR – 3 F – 1	NR
2	NR	C	C	NR
2	NR	B	B	NR
1	C	NR	C	NR
1	F	B	B	C
1	F	C	C	D
2	C	A	A	B
1*	F	F	F	D
2	F	D	D	D
2	D	D	D – 1 C – 1*	D
5	D	C	C – 4 D – 1*	C
2	C	C	C	C
1	B	C	C	C
9	C	B	B	B – 8 C – 1
7	B	B	B	B
7	B	A	A	A – 5 B – 2
6	A	A	A	A

*Near the cut-score for both models

Table 3. Preliminary Results for Prorated Schools

Schools	Current K-8	Current 9-12	Prorated Grade K-8 Cuts	Prorated Grade 9-12 Cuts
11	NR	NR	NR	NR
1	D	NR	NR	NR
4	C	NR	NR	NR
3	B	NR	NR	NR
1	A	NR	NR	NR
1	F	F	F	D
2	D	D	D	D
2	C	C	C	C
4	B	B	B	B
4	A	A	A	A
1	D	F	D	D
1	F	C	D	D
2	C	D	C	C
1	B	D	C	C
1	C	B	C	C
1	B	C	B	B
1	A	C	B	B
1	A	B	B	B
1	C	A	B	B
1	B	A	B	B
2	B	A	A	A

Definition of Table Variables:

Schools: *Number of schools with the current grade profile. Different 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.*

Comparison Prorated: *K-8 and 9-12 percent of points earned prorated using proficiency FAY student counts. Grade determined using appropriate cutscores.*

Grade K-8 Cuts: *Letter grade determined using the K-8 model cutscores*

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

Defining and Measuring Student Risk in a High-Stakes Accountability System

According to a National Center for Education Statistics report: "*An 'at-risk' student is generally defined as a student who is likely to fail at school*" (Kauffman & Bradbury, 1992, p. 2). In this context, school failure is typically seen as dropping out of school before high school graduation.

This report and others also show that risk is a complex factor that is very strongly related to performance in school in reading and mathematics and to the eventuality of either finishing or dropping out of high school. Accordingly, we have seven categories of risk factors that include:

1. basic demographic characteristics;
2. family and personal background characteristics;
3. the amount of parental involvement in the student's education;
4. the student's academic history;
5. student behavioral factors;
6. teacher perceptions of the student; and
7. characteristics of the student's school.

If Arizona is to capture a complete description of what an at-risk student is and the conditions leading to low achievement, the following provides a list of variables that affect a student's achievement. Nationally, the number of at risk students might be around 33%. In Arizona, that figure is probably closer to 50%.

1. Poverty–Usually coded as free/reduced lunch;
2. English Language Learner (ELL)–Students whose second or third language is English;
3. Disability–Can be cognitive, emotional, or psychomotor or a combination of these three;
4. Homelessness;
5. Cultural isolation–Including reservation students;
6. Single parent/foster parent/two parents;
7. Gender–In combination with other factors, boys tend to have a higher chance of not finishing;
8. Attendance/tardiness;
9. Mobility–moving two or more times during the school year;
10. Parent involvement in school;
11. Students who are passive, disruptive, or inattentive in class;
12. Delinquency, truancy, suspension;
13. Urban schools with large minority populations tend to have low achievement;
14. History of siblings–Older siblings who are less successful predict low achievement;
15. Student achievement history–Record of previous low achievement;
16. Student age–Older students tend to achieve less than peers;
17. Parents educational level;
18. Student participation and feelings of alienation;
19. Student grades;
20. Coming to school prepared to learn; and

21. School characteristics (urban schools that are overcrowded and understaffed have a disproportionate record of low achievement).

School failure typically does not happen in a single day or year, but is a culmination of a gradual process of school disengagement over time. Poor attendance, cutting class, disruptive behaviors, and other actions are part of a cluster of student behaviors that indicate the student's disinterest in school. These behaviors are a part of the process that may eventually lead to poor achievement, early school withdrawal, or both (Kauffman & Bradbury, 1992).

Accordingly, our recommendation is to:

1. Determine which of these can be effectively captured at the district/school level;
2. Include those which can be captured in calculations of school-levels of effectiveness as is possible (i.e., also within school-level growth or value-added calculations); and
3. Include these, as well as school-level programs to help prevent/address these risk factors, accommodate/support students with these risk factors, etc. also as indicators of school-levels of effectiveness.

References

Kaufman, P., & Bradbury, D. (August 1992). Characteristics of At-Risk Students in NELS:88. Washington, DC: National Center for Education Statistics (NCES).

A Note on a Validity Study Involving At-Risk Students

First, construct a risk variable that includes as many relevant variables as is possible. Keep in mind that an accumulation of risk conditions is additive in terms of predicting low achievement. The more risk factors present in a student, the lower the predicted achievement. For example, consider a student living in poverty on a reservation, learning to speak English, and having an emotional disability. That student is predicted to have very low achievement. A student living in poverty and absent other risk factors has a higher predicted achievement.

The risk variable should be studied to determine which variables are most potent. This part of the study might involve a principal component factor analysis with varimax rotation—a standard method of study. The procedure will produce a risk factor—a single variable—that is a weighted composite of all these risk variables.

With this risk variable, for each grade level, we need individual proficiency scores and growth scores and a school variable including school type and a class identifier—cohort. From these data, compute a predicted score and contrasted it with an actual score using regression analysis. A distribution of effects can be observed with a mean and standard deviation. From this result, you can infer in a limited way, that some classes exceeded, met, or did not exceed the mean. Thus, the distribution of actual scores plotted against predicted scores gives you a crude indicator of how much a student or cohort of students performed on the current proficiency test. It is important to note the practical significance of differences in class performance. It is also important to ascertain mitigating circumstances outside of school that may have influenced the results.

Two provisos exist:

1. A single achievement test is not an adequate indicator of student achievement. The American Educational Research Association (AERA) advocates the use of multiple achievement measures to best represent student achievement for a high-stakes test score use. The *Standards for Educational and Psychological Assessment* (AERA, American Psychological Association—APA, and the National Council on Measurement in Education—NCME, 2015) also support the use of multiple measures to validly represent student achievement.

2. Cohorts of students grouped by class in a school are inherently biased, because cohorts are seldom in intact. Due to absenteeism, irregular attendance, mobility, truancy, delinquency, expulsion, and other factors, the composition of any cohort may change. How is this handled in an accountability model is very important.

References

American Educational Research Association, American Psychological Association & National Council on Measurement in Education. (2015). *Standards for educational and psychological testing*. Washington, DC: American Educational Research Association.