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Date: Oct 17, 2016

From: Adam Larsen, Assistant Superintendent

To: Board of Education

Cc: Thomas Mahoney, Superintendent

Re: Oct 2016 Board Report

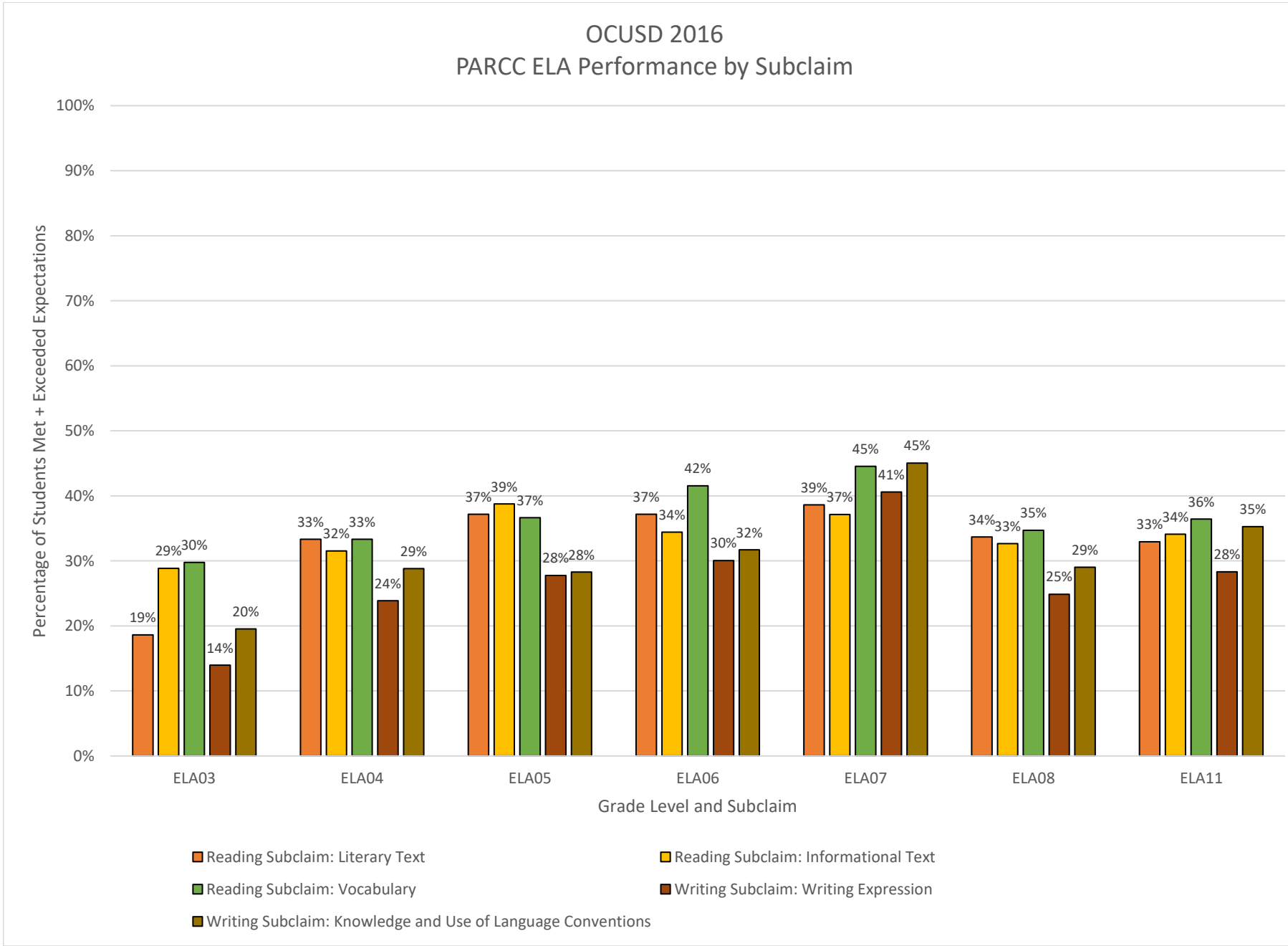
PARCC 2016

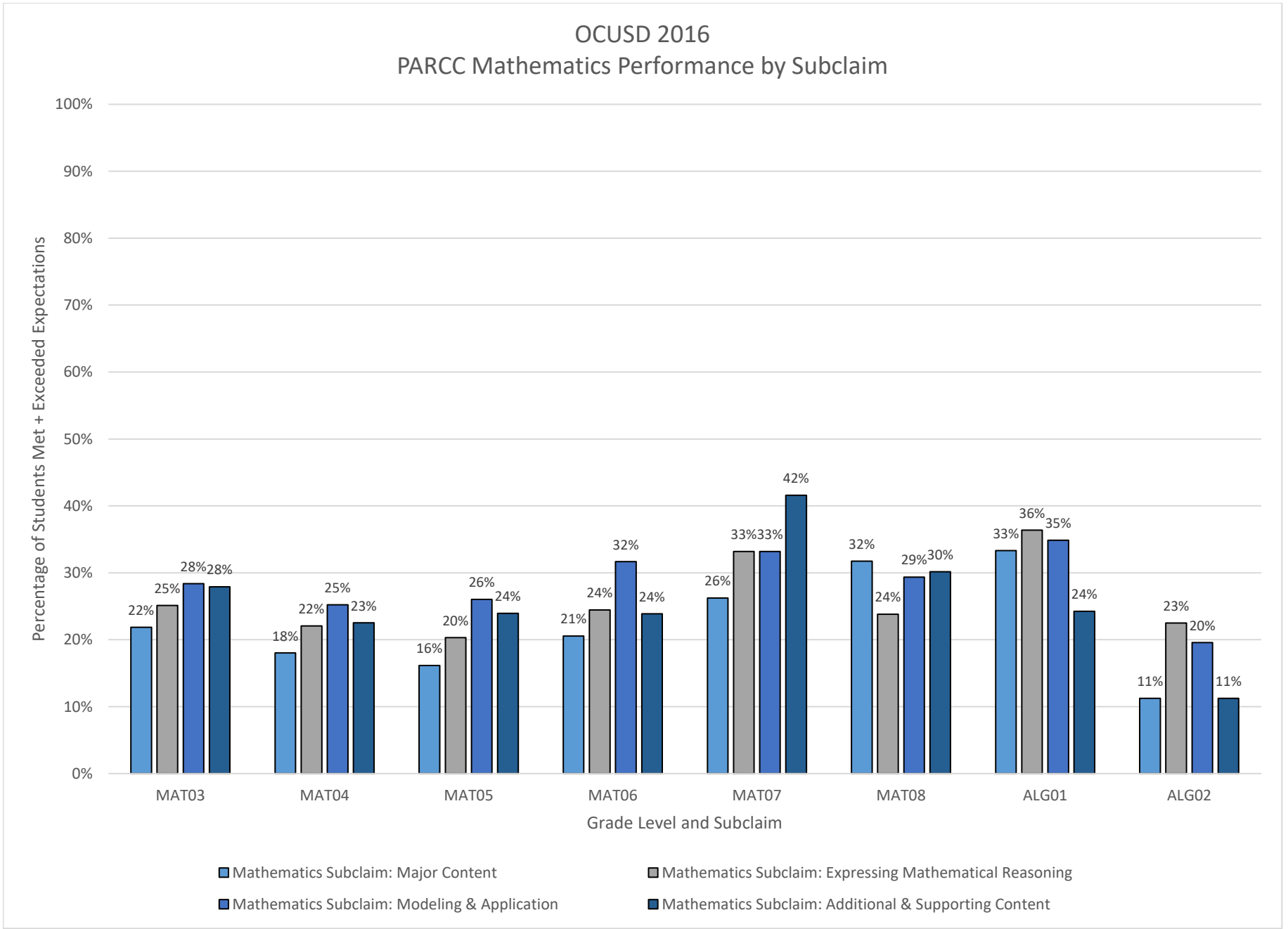
Now that we have completed our second year of administering the PARCC test and have received the student data, we are beginning to mine the data and look for patterns or trends that need investigation. Some of our first analyses have been break down overall English/Language Arts (ELA) and Mathematics scores into standards or subclaims. In both ELA and Mathematics, students receive an overall score between 650 and 850, and a performance level from 1 to 5. These levels range from *did not meet expectations* to *exceeded expectations.* Under these overall scores, students also receive scores in standards-aligned areas from 1 to 3. The two subjects are broken down into 4 or 5 areas each:

Reading Subclaim: Literary Text
Reading Subclaim: Informational Text
Reading Subclaim: Vocabulary
Writing Subclaim: Writing Expression
Writing Subclaim: Knowledge and Use of Language Conventions

Mathematics Subclaim: Major Content
Mathematics Subclaim: Expressing Mathematical Reasoning
Mathematics Subclaim: Modeling & Application
Mathematics Subclaim: Additional & Supporting Content

The stock PARCC reports do very little to demystify the students' scores at the standards level, so we are analyzing the data internally using Excel. The following charts show grade-level performance based separated out by standard, one for ELA and one for Mathematics. This type of chart allows us to have conversations about where and in what areas our students are performing the best and worst. The next step is to break this down even farther, by teacher, to see if a particular teacher is a standout on a standard or if he or she could use some professional development in that area. These types of analyses will be created in the coming weeks to help inform coaching sessions between principals and teachers.


OCUSD 2016
PARCC ELA Performance by Subclaim
Percentage of Students Met + Exceeded Expectations
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
19%
29%
30%
14%
20%
33%
32%
33%
24%
29%
37%
39%
37%
28%
28%
37%
34%
42%
30%
32%
39%
37%
45%
41%
45%
34%
33%
35%
25%
29%
33%
34%
36%
28%
35%
ELA03
ELA04
ELA05
ELA06
ELA07
ELA08
ELA11
Grade Level and Subclaim
Reading Subclaim: Literary Text
Reading Subclaim: Informational Text
Reading Subclaim: Vocabulary
Writing Subclaim: Writing Expression
Writing Subclaim: Knowledge and Use of Language Conventions


OCUSD 2016
PARCC Mathematics Performance by Subclaim
Percentage of Students Met + Exceeded Expectations
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
22%
25%
28%
28%
18%
22%
25%
23%
16%
20%
26%
24%
21%
24%
32%
24%
26%
33%
33%
42%
32%
24%
29%
30%
33%
36%
35%
24%
11%
23%
20%
11%
MAT03
MAT04
MAT05
MAT06
MAT07
MAT08
ALG01
ALG02
Grade Level and Subclaim
Mathematics Subclaim: Major Content
Mathematics Subclaim: Expressing Mathematical Reasoning
Mathematics Subclaim: Modeling & Application
Mathematics Subclaim: Additional & Supporting Content

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Northwest Evaluation Association (NWEA) Measures of Academic Progress (MAP)

NWEA's Measures of Academic Progress (MAP) test has been used in the school district since the Spring 2008 testing season. This assessment is a form of computer-adaptive testing, where the test taker is presented a series of questions that is tailored to that particular student's academic level. If a student answers a question correctly, the computer will give the student a more difficult question. If the next question is answered incorrectly, the following question will be easier. The number of questions in the test bank is vast, and no two students take the same exact test. This approach offers a number of advantages over traditional testing, including reduced standard error of measurement, less time spent testing, and fewer questions required for each student. Because the assessment is taken on the computer, results are available immediately after a student completes the test. Reports on student progress are available the next day, and growth is tracked over time (season to season and year to year).

In Oregon, the introduction of the MAP assessment has been along the following schedule:

School Year	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
2007-2008				S	S						
2008-2009				F, S	F, S						
2009-2010		F, W, S	F, S	F, S	F, S	F, S	F, S				
2010-2011	S	F, W, S	F, W, S	F, S	F, S	F, S	F, S	F, S	F, S		
2011-2012	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S (SpEd)	F, W, S (SpEd)		
2012-2013	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S (SpEd/ELL)	F, W, S (SpEd/ELL)	F, W, S (SpEd/ELL)	F, W, S (SpEd/ELL)
2013-2014	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S (ELL)	F, W, S (ELL)	F, W, S (ELL)	F, W, S (ELL)
2014-2015	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S				
2015-2016	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S	F, W, S				
2016-2017	F	F	F	F	F	F	F				

F=Fall, W=Winter, S=Spring

The Fall 2016 testing window was recently completed, and 1694 individual test events were recorded. Many personnel are involved in the testing window, including principals, teachers, aides, and tech staff, and all deserve recognition for their efforts.

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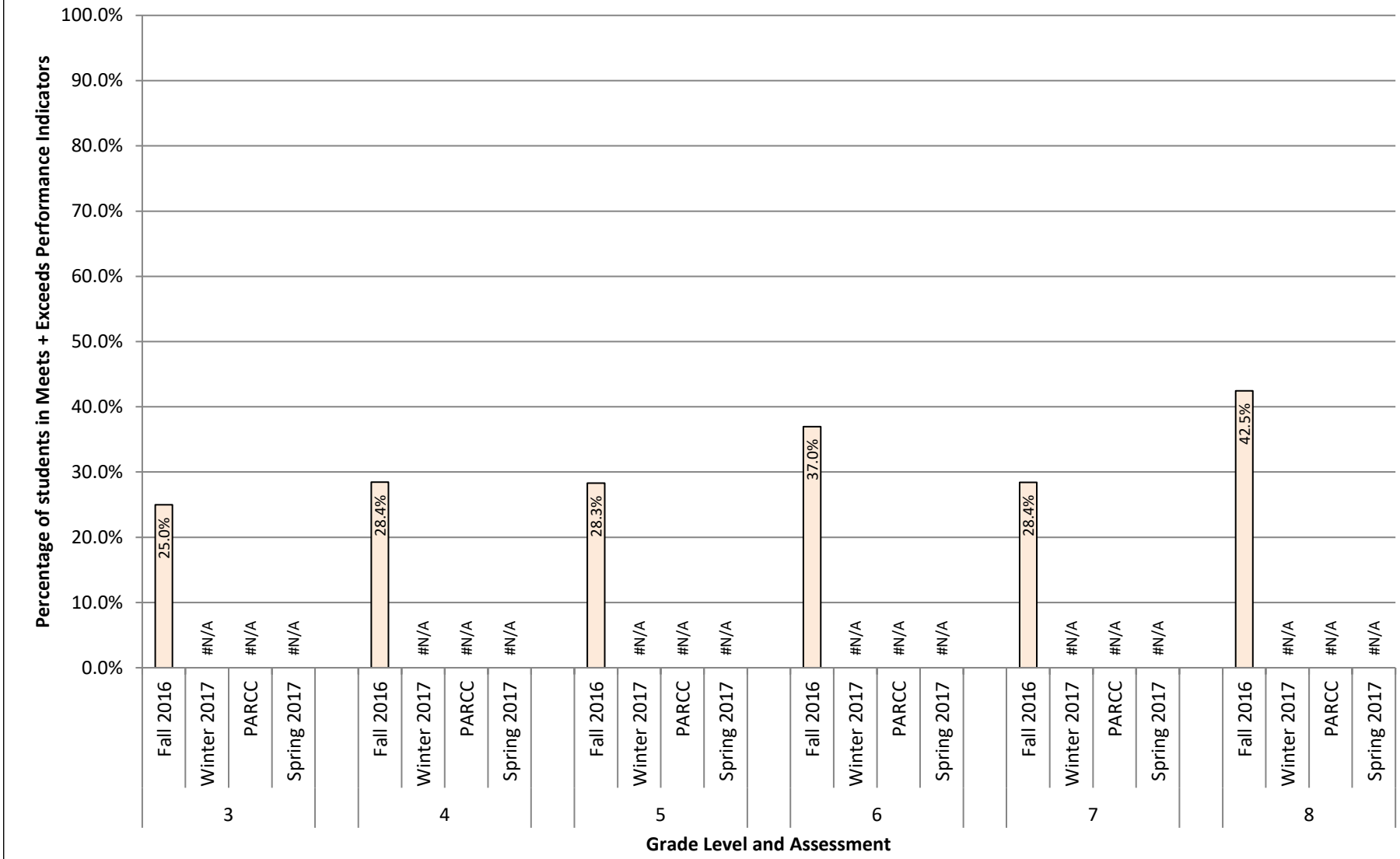
Predicting the 2017 PARCC

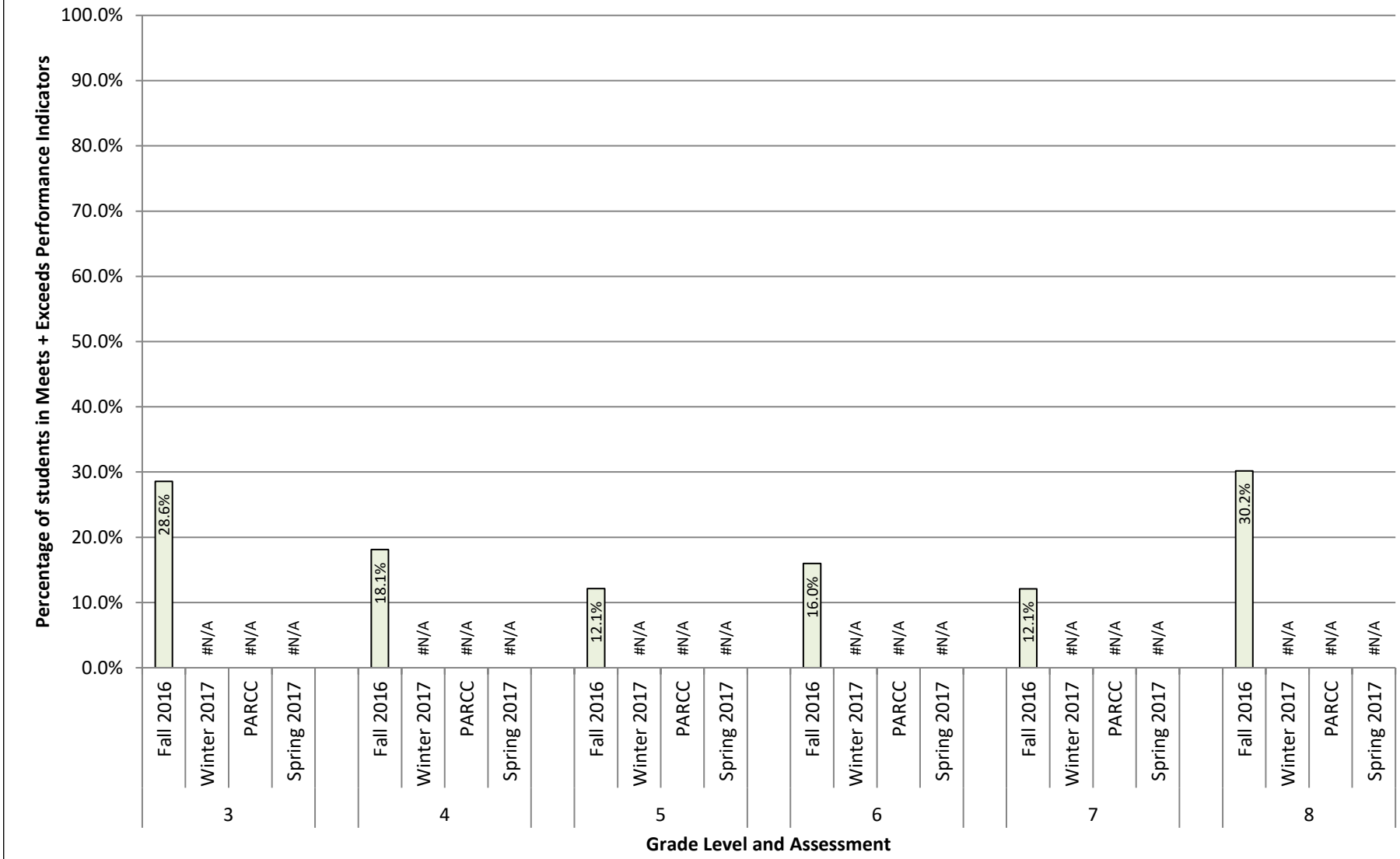
NWEA released updated MAP-PARCC correlate cutscores in March of 2016. These cutscores allow school districts to make predictions about which students are expected to meet and not meet expectations when they take the PARCC each spring. This analysis is useful both for 1) program evaluation, determining how well the overall curriculum is working to prepare students, and 2) resource allocation, identifying which students need additional support to make the gains they need to close the achievement gap with their peers.

A summary of expected performance in Reading and Mathematics follows. These graphs are used each year to track cohort progress toward the expected goal. By plotting the achievement tests on a consistent scale each term, it allows for easy comparisons to be made after every testing season. On these charts, which will be updated periodically throughout the 2016-2017 school year, predictions of PARCC performance based on MAP scores will be plotted alongside actual PARCC performance from the same school year.

2017 PARCC Reading
with Fall, Winter, and Spring Predictions from MAP



2017 PARCC Mathematics
with Fall, Winter, and Spring Predictions from MAP



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PARCC Prediction Accuracy

Each year, we conduct a local analysis of the predictive success of MAP for all of the grade levels which take the PARCC. The present approach involves identifying the types of possible errors and indicating their prevalence in the statistical sample. This analysis supposes that the default condition of a student is to meet expectations on the PARCC. This is referred to as the *null hypothesis*. For each student, the MAP test is used to identify students where the null hypothesis should be *rejected*, which would indicate that he or she will not meet expectations on PARCC. When a student is predicted to meet expectations on the PARCC, it is said that the null hypothesis *fails to be rejected*.

At the time of prediction (Fall MAP), there are two conditions in which a student may fall: predicted to meet expectations or predicted not to meet expectations. At the time of the final assessment (Spring PARCC), there are also two conditions: meeting expectations, and not meeting expectations. For simplicity, these conditions are referred to as *meeting* and *not meeting* going forward. When these two sets of conditions are crossed, a table such as below emerges:

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		Actual Performance (Spring 2017 PARCC)	
		Meeting	Not Meeting
Predicted Performance (Fall 2016 MAP)	Meeting	Correct	Type II Error
	Not Meeting	Type I Error	Correct

Predict: Meeting, Actual: Not Meeting– This student was correctly identified as **not** being at risk for falling below expectations on the PARCC. This is commonly referred to as a "correct miss."

Predict: Not Meeting, Actual: Meeting– This student was correctly identified as being at risk for falling below expectations on the PARCC. This is commonly referred to as a "correct hit."

Predict: Meeting, Actual: Not Meeting – This student was predicted to meet expectations on the PARCC, but fell below on the actual test. This type of incorrect prediction is known as a Type II error in research. In practice, this is a student who "fell through the cracks" of the intervention system. Because the student was not expected to score below the state-mandated benchmark, he or she was likely not targeted for additional intervention designed to remediate the skills in which the deficiencies lie. An alternative hypothesis is that the student had a bad test day when he or she took the PARCC.

In the school setting, a Type II Error is considered worse than Type I because the student was not identified as needing additional assistance when it probably would have helped.

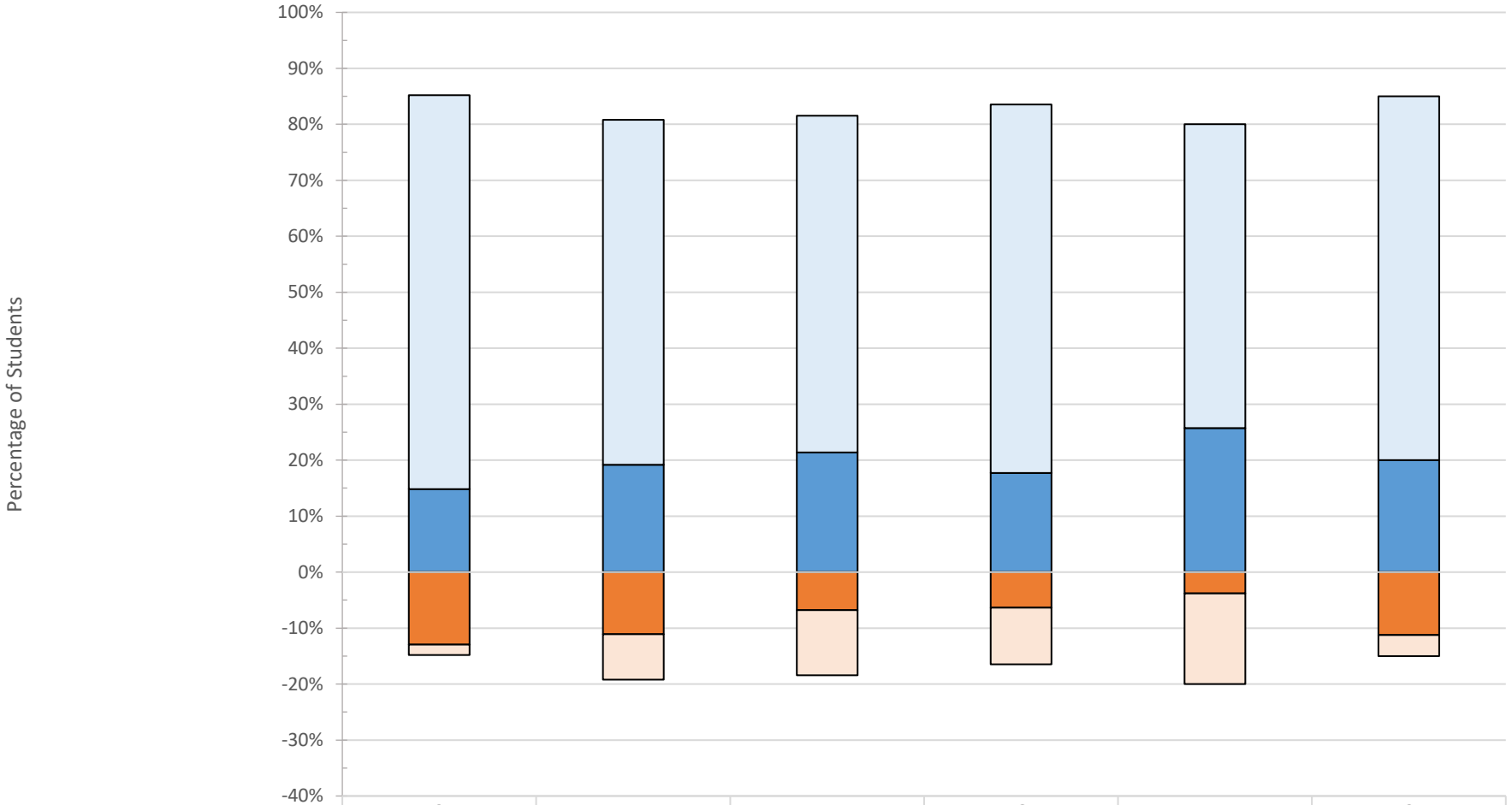
Predict: Not Meeting, Actual: Meeting – This student was predicted not to meet expectations on the PARCC, but performed successfully on the actual test. This type of incorrect prediction is known as a Type I error in research. In practice, this is a student who was targeted for intervention, and the intervention was successful in bringing that student up to expectations by the time of the PARCC. An alternative hypothesis is that the student had a bad test day when he or she took the MAP.

In the school setting, a Type I Error is considered more acceptable than a Type II error, because students on the bubble are being over identified for intervention. These students, while they did meet expectations on the PARCC, may have only done so because of the intervention in place.

The rates of these two types of errors are related. If high cutpoints are used for identification, then more Type I errors will be committed. Lowering the cutpoints results in a lowered Type I error rate, but a higher Type II error rate. The selected cutpoints strike a balance between these two.

The percentage of students falling into each of these four cells was computed and plotted for visual inspection:

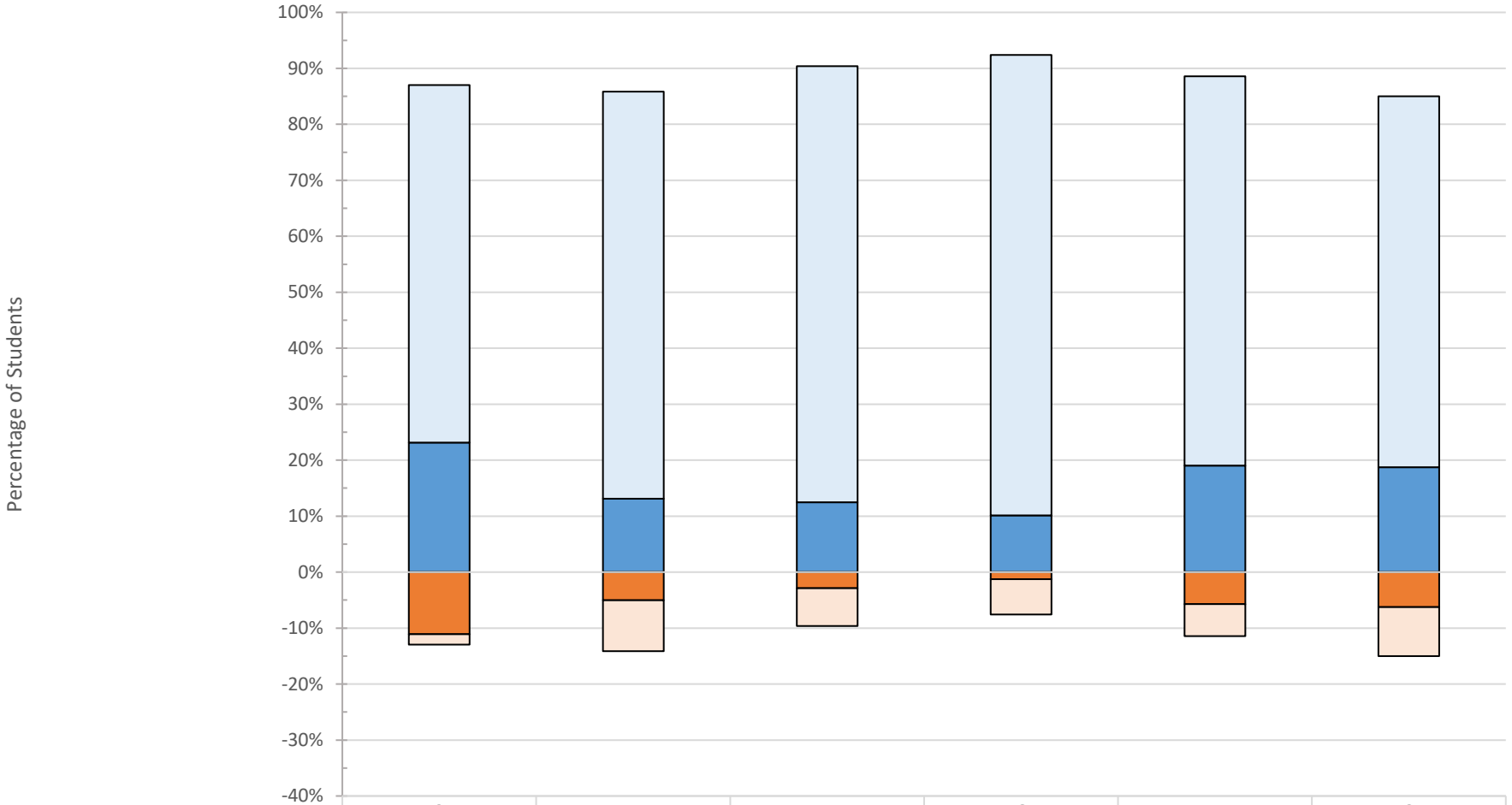
2015-2016 MAP-PARCC Prediction Accuracy
English/Language Arts



	3	4	5	6	7	8
Predict: Not Meet, Actual: Meet	-2%	-8%	-12%	-10%	-16%	-4%
Predict: Meet, Actual: Not Meet	-13%	-11%	-7%	-6%	-4%	-11%
Predict: Not Meet, Actual: Not Meet	70%	62%	60%	66%	54%	65%
Predict: Meet, Actual: Meet	15%	19%	21%	18%	26%	20%

Grade Level

2015-2016 MAP-PARCC Prediction Accuracy
Mathematics



	3	4	5	6	7	8
Predict: Not Meet, Actual: Meet	-2%	-9%	-7%	-6%	-6%	-9%
Predict: Meet, Actual: Not Meet	-11%	-5%	-3%	-1%	-6%	-6%
Predict: Not Meet, Actual: Not Meet	64%	73%	78%	82%	70%	66%
Predict: Meet, Actual: Meet	23%	13%	13%	10%	19%	19%

Grade Level

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European PowerSchool User Group

The European PSUG once again invited me to present at their annual conference. This year, the meetings were held in Leiden, Netherlands at the American School of The Hague. Over the course of 3 days, I taught in 7 of the 9 sessions, with topics including Data Access Tags, Structured Query Language, Visualizing Data, HTML/CSS, a Customization Lab, Automating Data Tasks, and Code Management.

Attendees in these sessions came from all over Europe, including the UK, Switzerland, Bulgaria, Italy, Czech Republic, Spain, and Netherlands. The American and International Schools found throughout the world tend to like PowerSchool for its ability to be customized to meet their varying needs. However, many of these schools lack the development capacity to do what directors and principals want PowerSchool to do. This annual conference is one of the only opportunities these schools have to learn about customization, so they are very excited to attend sessions taught by an American presenter with good experience in the system.

As a presenter, it is always enjoyable to have attendees who ask difficult questions, create new ways of looking at problems, and even come up with solutions to each other's issues. I was able to return home with a few new ideas about reports to build and how best to convey information to end users.

Respectfully Submitted,

Adam P. Larsen

Adam P. Larsen
Assistant Superintendent
Oregon Community Unit School District 220