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From: Adam Larsen, Assistant Superintendent

To: Board of Education

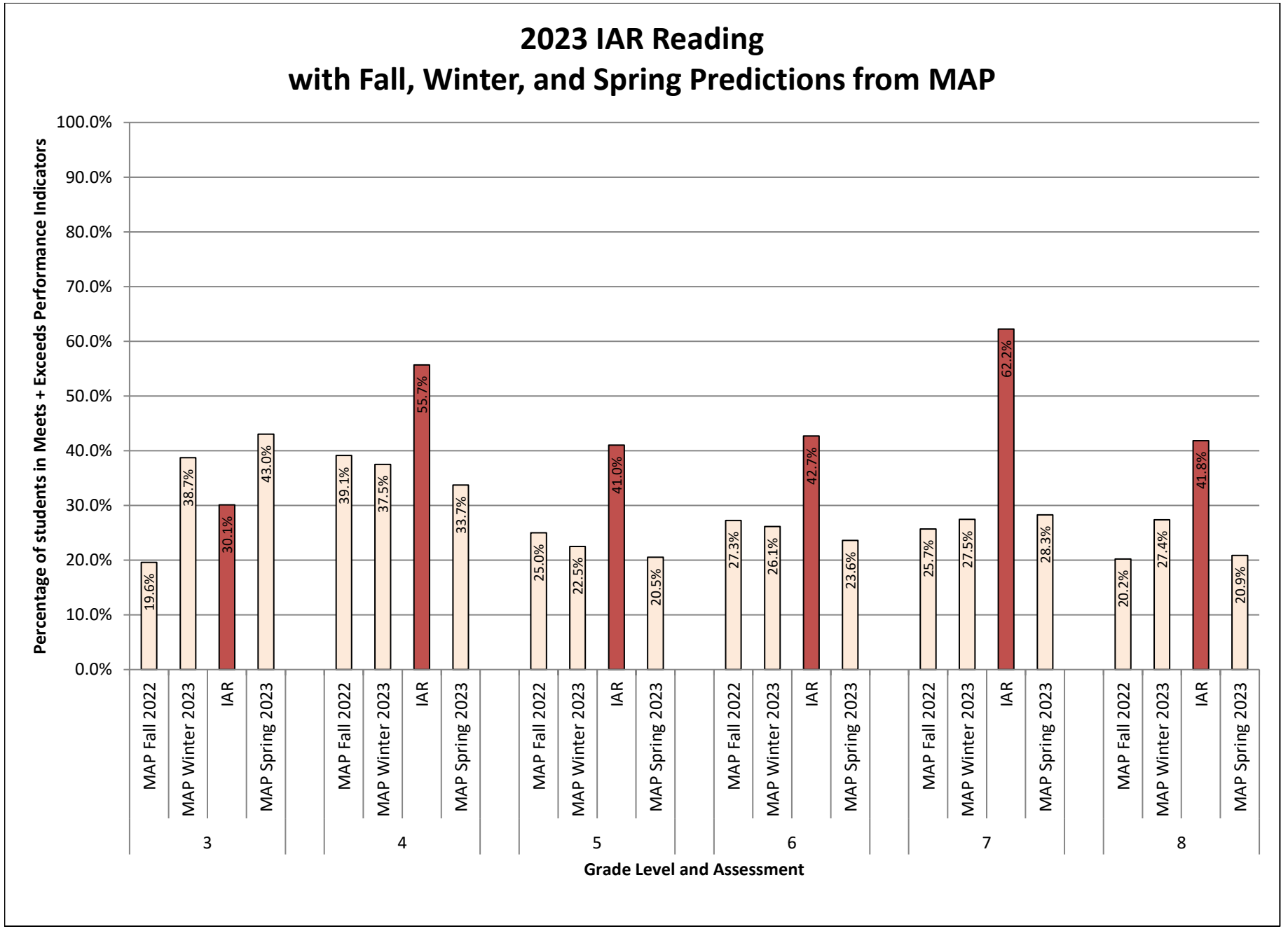
Cc: Thomas Mahoney, Superintendent

Re: September 2023 Board Report

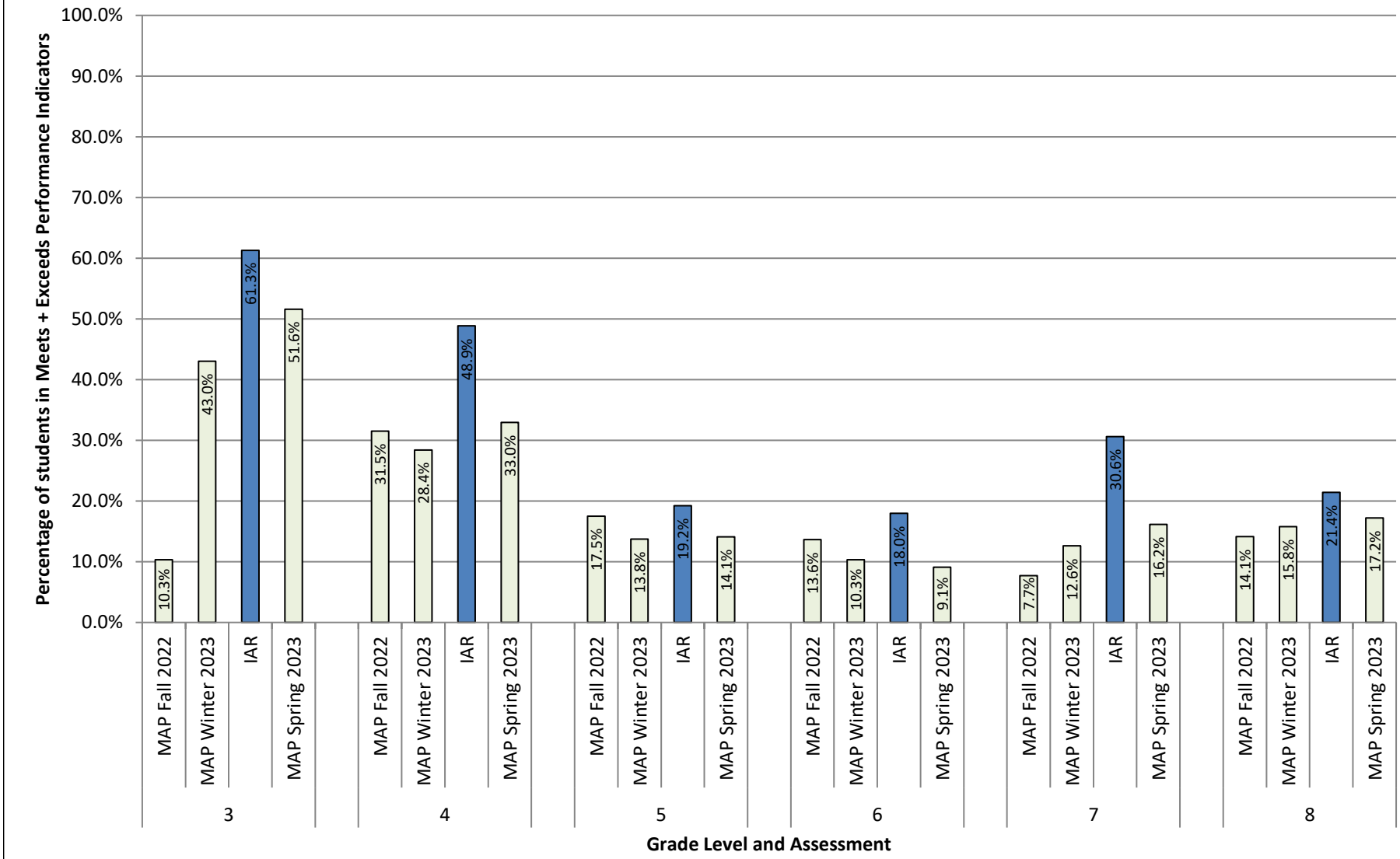
## 2023 Illinois Assessment of Readiness Data

In Spring 2023, students completed the second administration of the Illinois Assessment of Readiness (IAR) test. We again used the Pearson Access Next (PAN) platform for administering the assessment. While the Illinois State Board of Education (ISBE) has awarded a new contract for IAR to another company, Data Recognition Corporation (DRC), legal and other issues have prevented ISBE from extricating itself from the Pearson system. We have received no new information about actually making this change, so we assume that we will administer the assessment on the Pearson platform again in 2024.

As with the previous assessments, ISAT and PARCC, we analyze the IAR data alongside the data from NWEA Measures of Academic Progress (MAP) to see how these percentages compare. We start by looking at the simple percentages by grade level and subject. That graph follows.


2023 IAR Reading
with Fall, Winter, and Spring Predictions from MAP
Percentage of students in Meets + Exceeds Performance Indicators
100.0%
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
19.6%
38.7%
30.1%
43.0%
39.1%
37.5%
55.7%
33.7%
25.0%
22.5%
41.0%
20.5%
27.3%
26.1%
42.7%
23.6%
25.7%
27.5%
62.2%
28.3%
20.2%
27.4%
41.8%
20.9%
MAP Fall 2022
MAP Winter 2023
IAR
MAP Spring 2023
3
4
5
6
7
8
Grade Level and Assessment

# 2023 IAR Mathematics
# with Fall, Winter, and Spring Predictions from MAP



Because we spend a great deal of time predicting future scores for the purposes of intervention, it is worthwhile to study the accuracy of the MAP-IAR relationship at the individual student level as well. This is useful information in deciding whether to continue use the MAP test in the future.

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 IAR. 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 IAR. When a student is predicted to meet expectations on the IAR, 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 IAR), there are also two conditions: meeting expectations, and not meeting expectations. For simplicity, these conditions are referred to as *over* and *under* (short for *over the bar* and *under the bar*) going forward. When these two sets of conditions are crossed, a table such as below emerges:

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| | | Actual Performance (Spring 2021 IAR) | |
|---|---|---|---|
| | | Over | Under |
| Predicted Performance (Fall 2020 MAP) | Over | Correct | Type II Error |
| | Under | Type I Error | Correct |

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

Predict: Under, Actual: Under – This student was correctly identified as being at risk for falling below expectations on the IAR. This is commonly referred to as a "correct hit."

Predict: Over, Actual: Under – This student was predicted to meet expectations on the IAR, 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 IAR.

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.

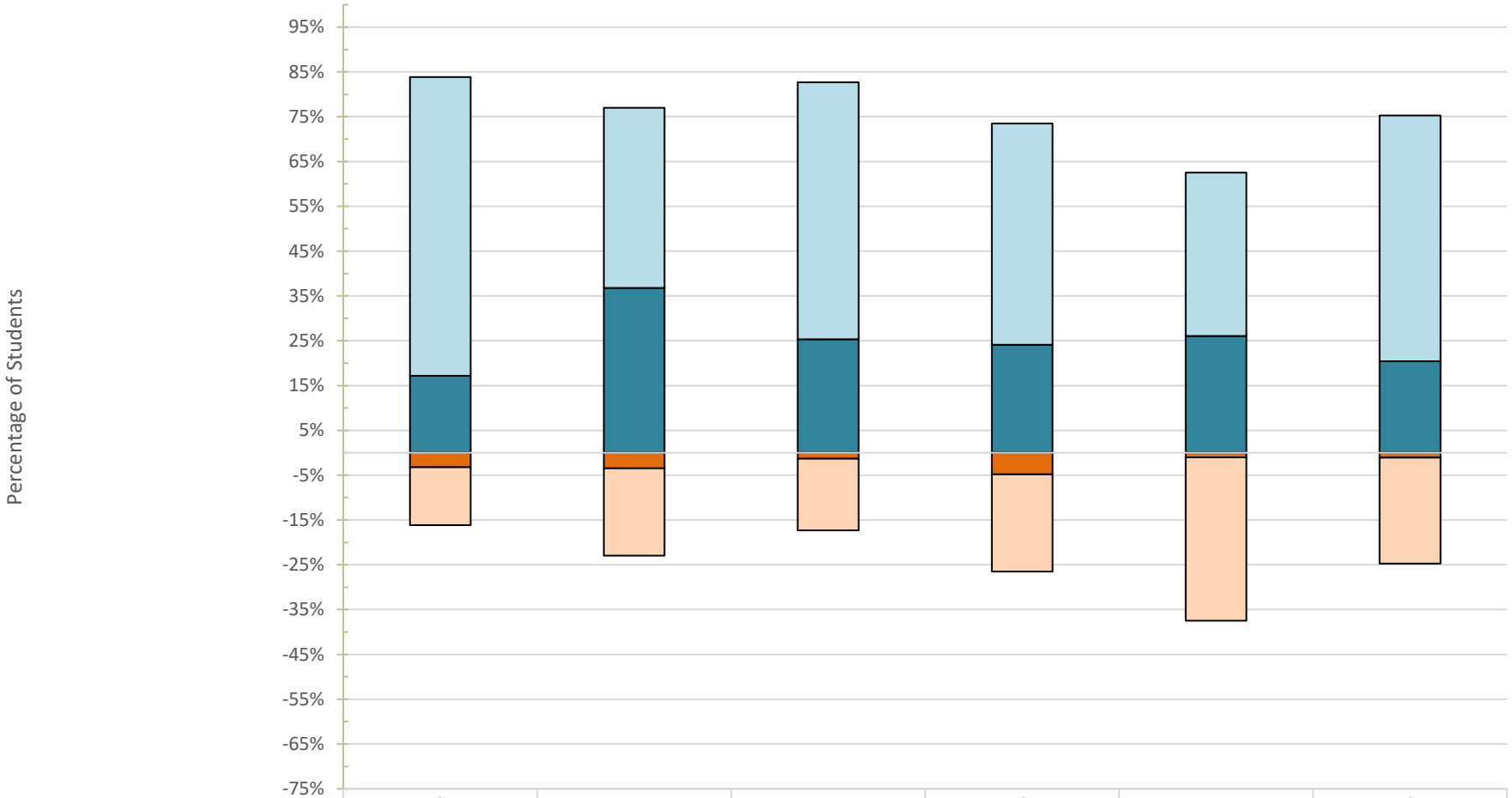
Predict: Under, Actual: Over – This student was predicted not to meet expectations on the IAR, but performed successfully on the actual test. This type of incorrect prediction is known as a Type I error in research. In practice, this is a student who was targeted for intervention, and the intervention was successful in bringing that student up to expectations by the time of the IAR. 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 IAR, 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:

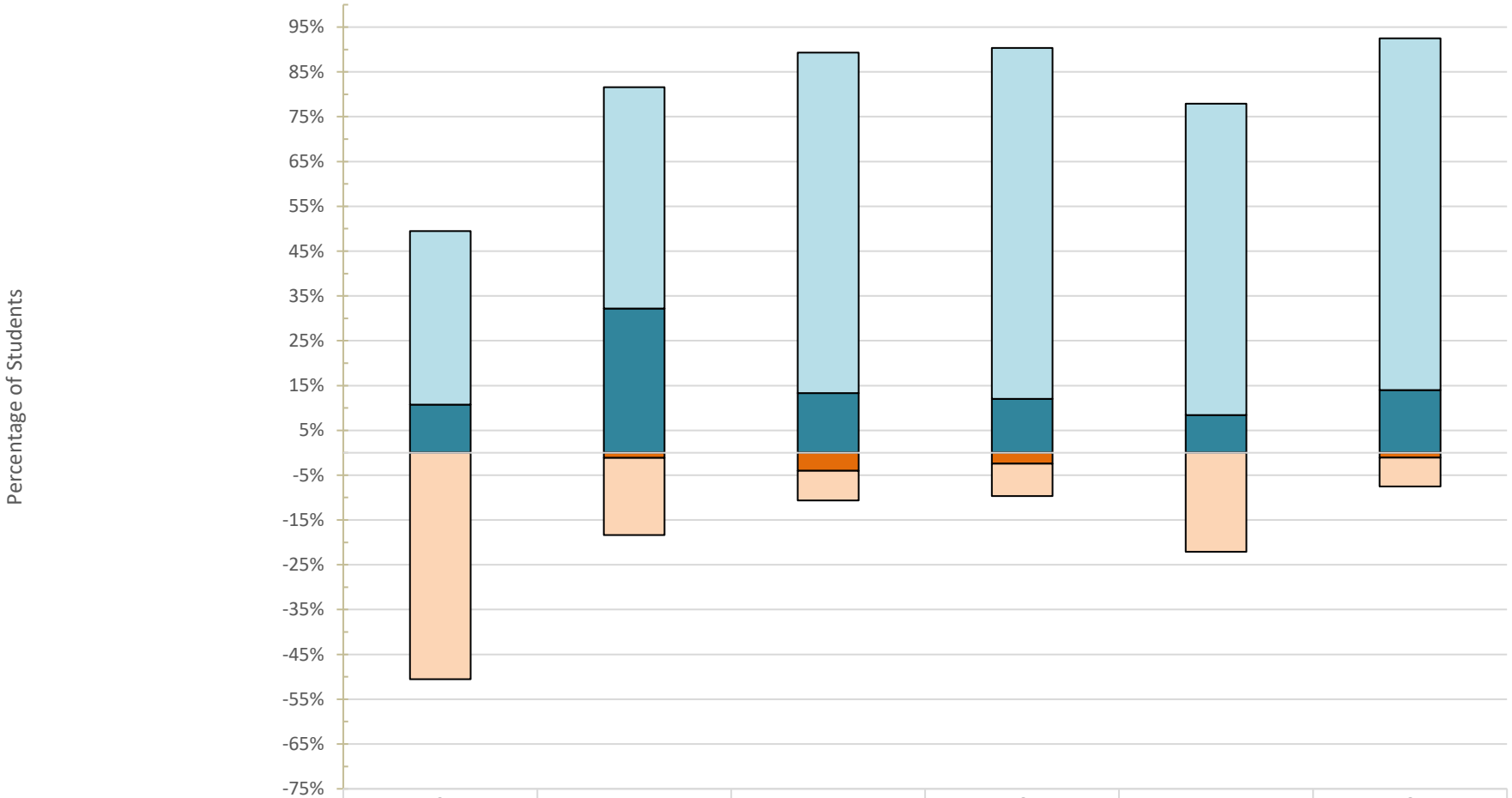
# 2022-2023 MAP-IAR Prediction Accuracy
## English/Language Arts




| | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|
| Predict: Not Meet, Actual: Meet | -13% | -20% | -16% | -22% | -36% | -24% |
| Predict: Meet, Actual: Not Meet | -3% | -3% | -1% | -5% | -1% | -1% |
| Predict: Not Meet, Actual: Not Meet | 67% | 40% | 57% | 49% | 36% | 55% |
| Predict: Meet, Actual: Meet | 17% | 37% | 25% | 24% | 26% | 20% |

Grade Level

# 2022-2023 MAP-IAR Prediction Accuracy
## Mathematics




| | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|
| Predict: Not Meet, Actual: Meet | -51% | -17% | -7% | -7% | -22% | -6% |
| Predict: Meet, Actual: Not Meet | 0% | -1% | -4% | -2% | 0% | -1% |
| Predict: Not Meet, Actual: Not Meet | 39% | 49% | 76% | 78% | 69% | 78% |
| Predict: Meet, Actual: Meet | 11% | 32% | 13% | 12% | 8% | 14% |

Grade Level

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## *Conclusions*

Correlations between the two assessments have really narrowed in the past couple of years. There were some recent years where Type II errors outpaced the Type I errors in some grade levels, which means students are likely missing out on targeted intervention. However, this trend has flipped the other direction in almost every grade level and subject, with nearly all prediction errors coming from students who have moved from below to above the target.

A few outliers emerge in this analysis that are worthy of note. Aside from grade 3, ELA scores on the IAR were some of the highest we have ever observed. In Mathematics, grades 3 and 4 showed strong results, and grade 7 continued to show improvements. Almost every data point showed higher performance on IAR than on the MAP assessment immediately preceding it.

When comparing the types of errors, every grade level showed more Type I errors in ELA, suggesting that far more students moved from not being expected to meet to actually meeting. This was also true in Mathematics, though students in grades 3 and 7 showed a *tremendous* amount of movement. What is more, in those two grade levels, *none* of the students who were expected to meet ended up falling below the benchmark. The teachers are doing incredible work to push these students toward their learning targets.

As with any exploratory research of this type, it is difficult to draw causal conclusions about why certain outcomes are observed. However, knowing the time and energy that were poured into building an intervention framework, and knowing the assessment results from the end of the year, it also difficult to ignore the likely story about teachers making the best use of time and resources to meet the needs of their students.

Respectfully Submitted,

Adam P. Larsen
Assistant Superintendent
Oregon CUSD #220