

# Critical Data for an Informed Decision

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# Olympia School District is Currently a High-Performance Math District

Statewide Rank  
(255 SDs)

2006 WASL

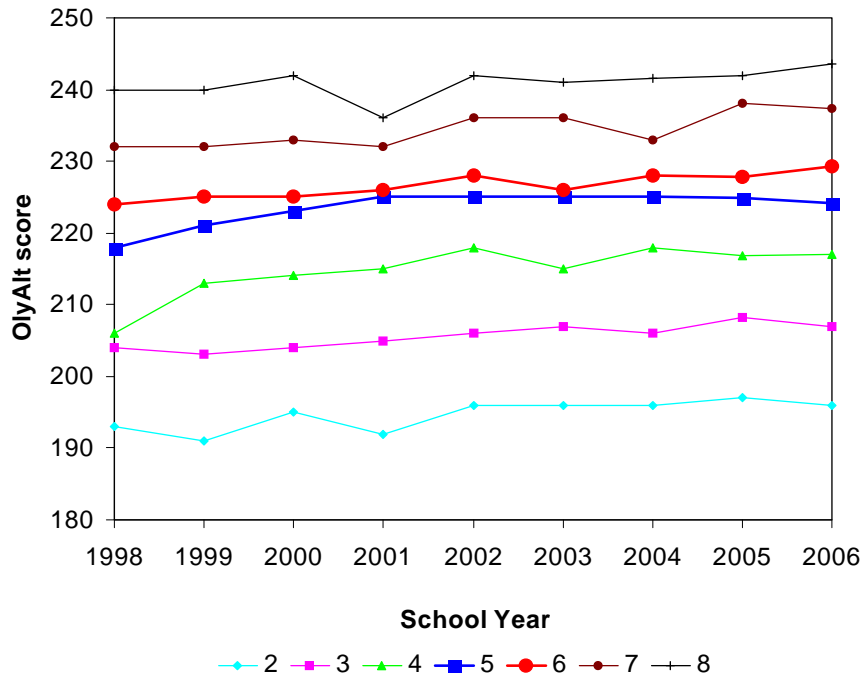
6<sup>th</sup> grade                      21<sup>st</sup>

7<sup>th</sup> grade                        20<sup>th</sup>

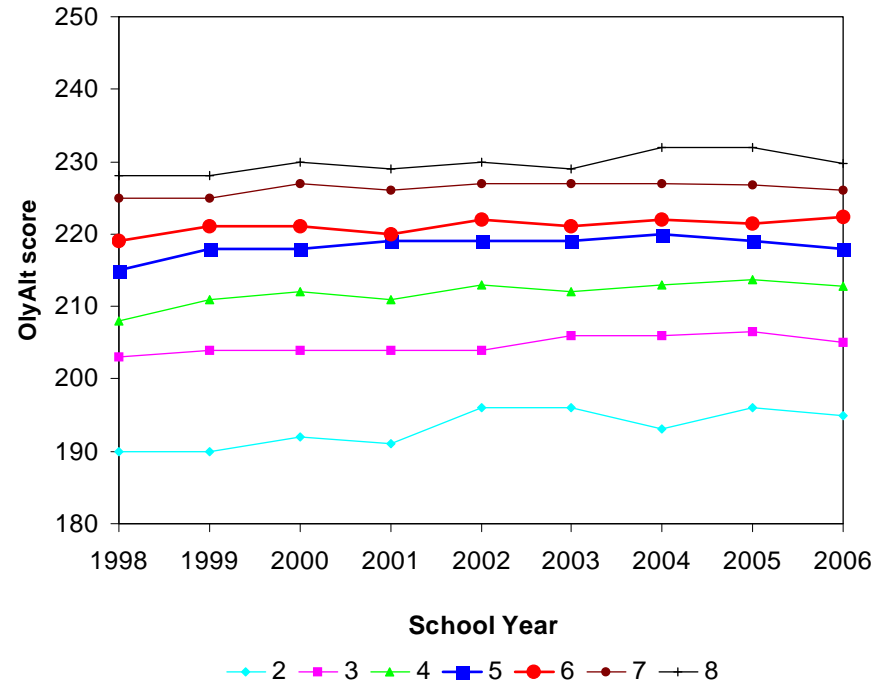
8<sup>th</sup> grade                        24<sup>th</sup>

# OlyAlt/MAP Trends

- Math scores increase from grade to grade
- The “dip” is not unique to math
- Same pattern prevails in reading



Math

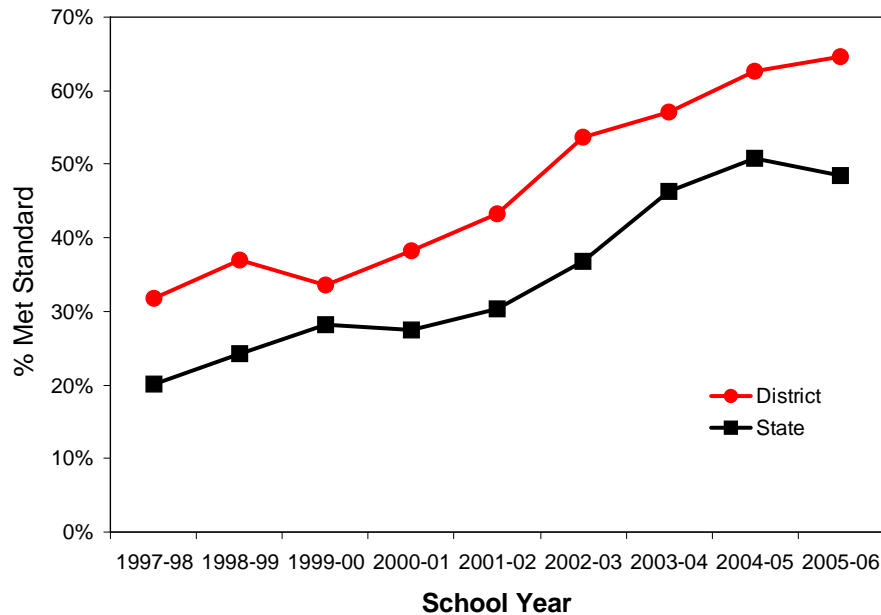


Reading

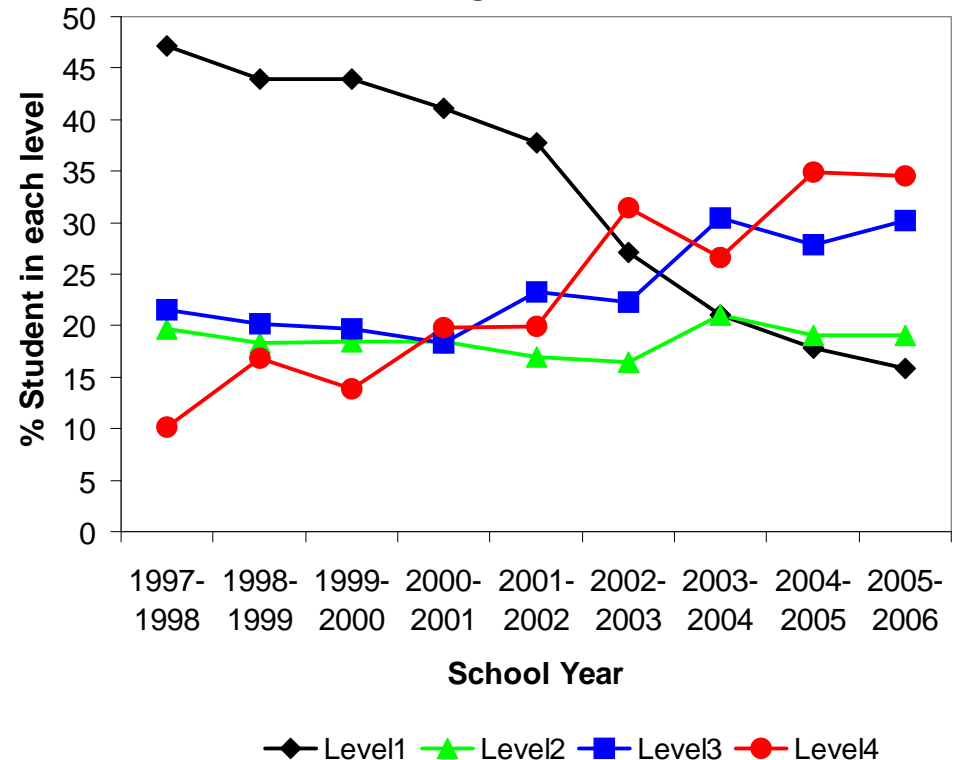
# WASL Trends

- OSD scores far exceed state performance
- In OSD
  - Number of students in Level 1 declined by 61%
  - Number of students in Levels 4 and 3 increased by 87%

OSD vs State 7<sup>th</sup> Grade WASL



OSD 7<sup>th</sup> grade WASL



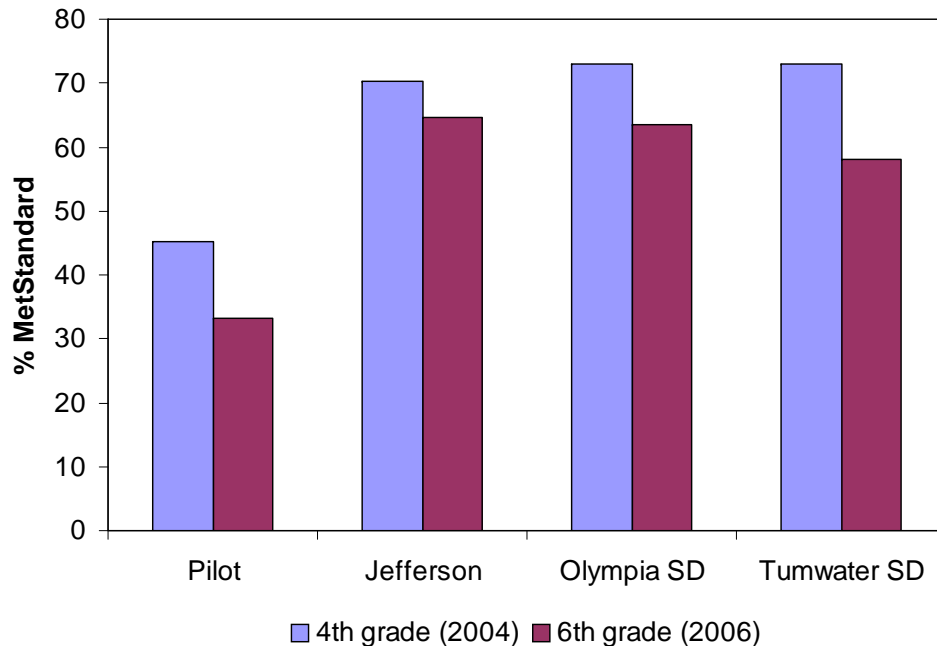
# Jefferson Pilot (2005 – 2006)

## Student response:

- Enthusiastic
- Exciting
- Fun

## Pilot results:

- Pilot pass rate declined by **26%** from previous level.
- JMS pass rate declined by only **8%** and the district by only **13%**.
- Decline of the pilot class mirrors the **20%** decline seen in Tumwater schools.



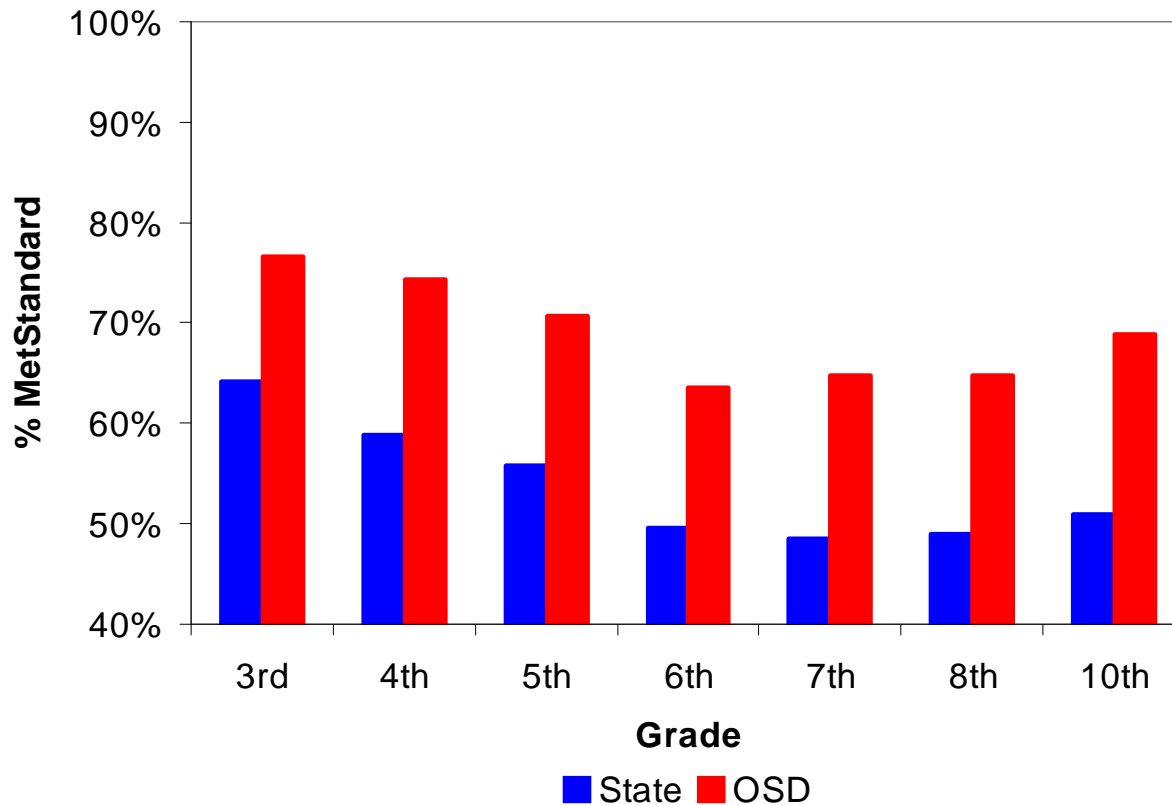
# Jefferson Pilot (2005 – 2006)

CMP negatively affected Level 3 & 2 students.



# 2006 WASL

- Downward trend through elementary levels
- This trend was stopped and reversed in middle schools



# Possible Factors Affecting WASL Performance

- Curriculum factor – CMP vs. non-CMP
- Non-Curriculum related factors
  - Demographics – free and reduced lunch
  - Transition to middle school – 6<sup>th</sup> or 7<sup>th</sup>
  - Student numbers
  - District differences

# Possible Factors Affecting WASL Performance

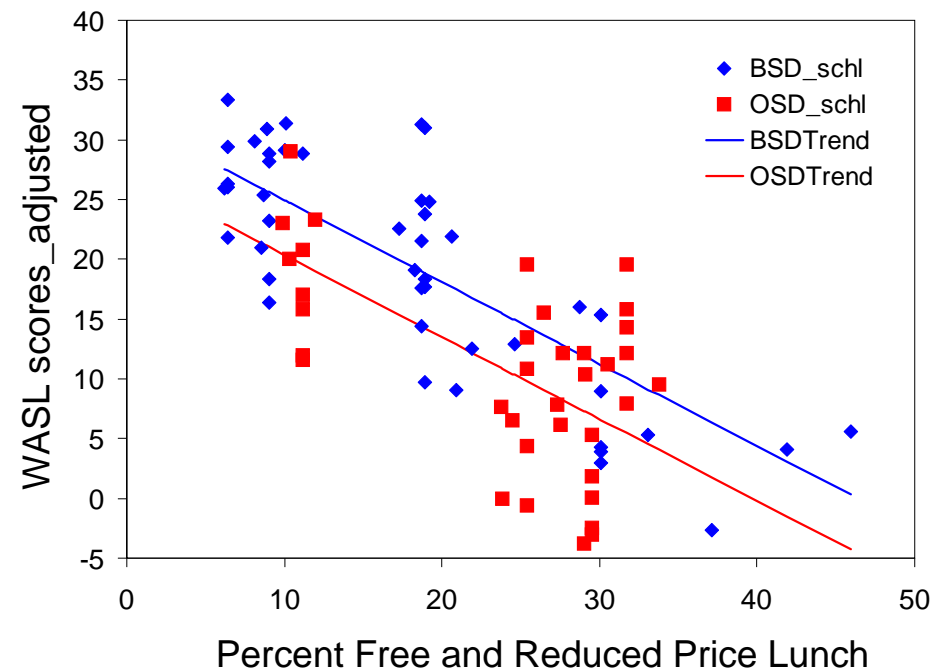
Statistically significant factors:

- Free and reduced lunch negatively affecting WASL score
- District (non-curriculum factors)

No statistical evidence that CMP improved WASL scores.

# Example of Statistical Model

1. Data treatment – take away underlying statewide trend
2. Model:  $WASL\ score = a + FRL + District + \epsilon$



## Analysis of Variance

| Source   | DF | Sum of Squares | Mean Square | F Ratio  |
|----------|----|----------------|-------------|----------|
| Model    | 2  | 4714.5713      | 2357.29     | 62.2033  |
| Error    | 78 | 2955.9252      | 37.90       | Prob > F |
| C. Total | 80 | 7670.4965      |             | <.0001   |

## Effect Tests

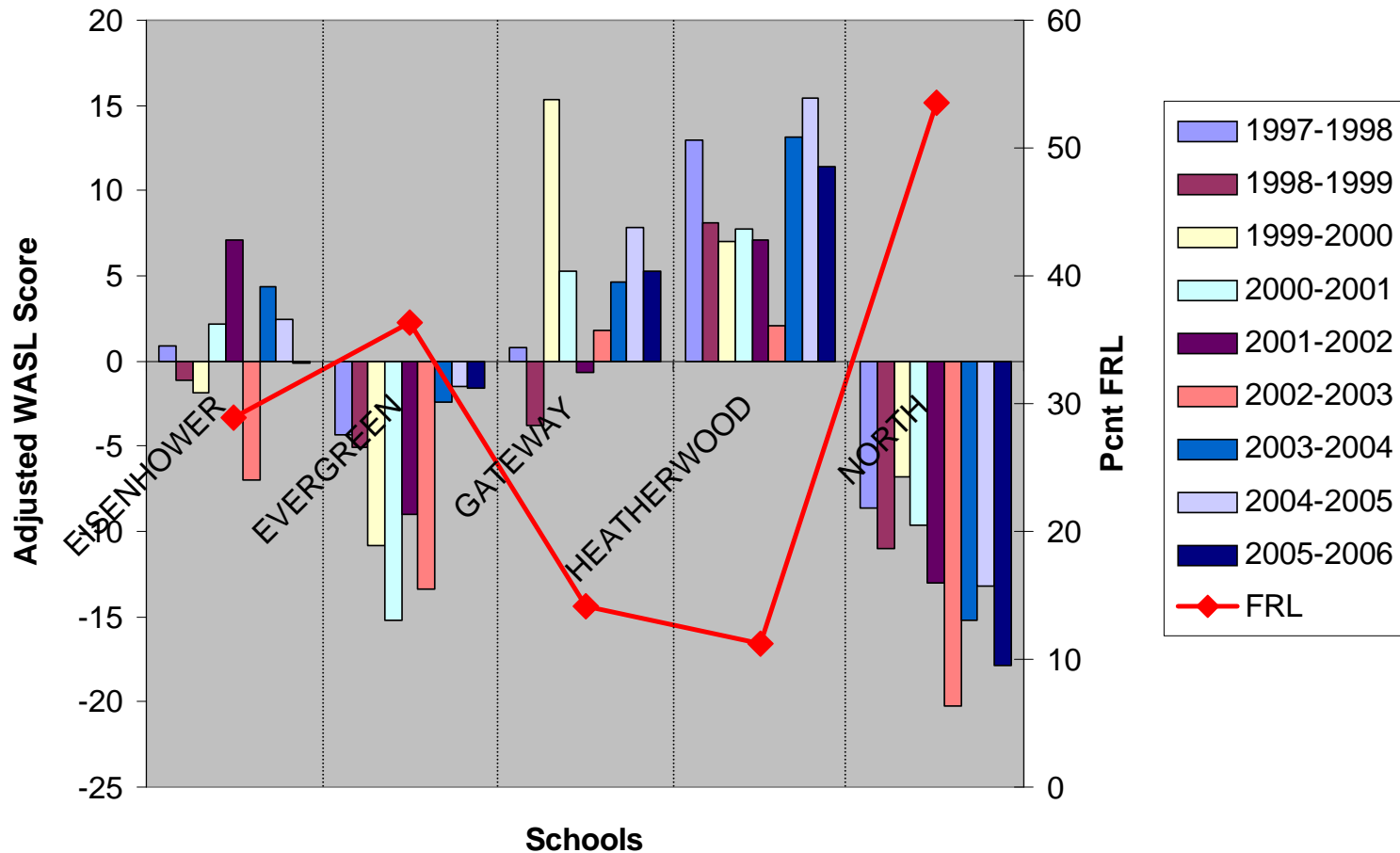
| Source   | Nparm | DF | Sum of Squares | F Ratio | Prob > F |
|----------|-------|----|----------------|---------|----------|
| District | 1     | 1  | 383.3348       | 10.1153 | 0.0021   |
| FRL      | 1     | 1  | 3234.4156      | 85.3487 | <.0001   |

## Parameter Estimates

| Term                | Estimate  | Std Error | t Ratio | Prob> t |
|---------------------|-----------|-----------|---------|---------|
| Intercept           | 29.511493 | 1.709576  | 17.26   | <.0001  |
| District [BELLEVUE] | 2.2953482 | 0.721704  | 3.18    | 0.0021  |
| FRL                 | -0.686049 | 0.07426   | -9.24   | <.0001  |

# CMP Case Study - Everett SD

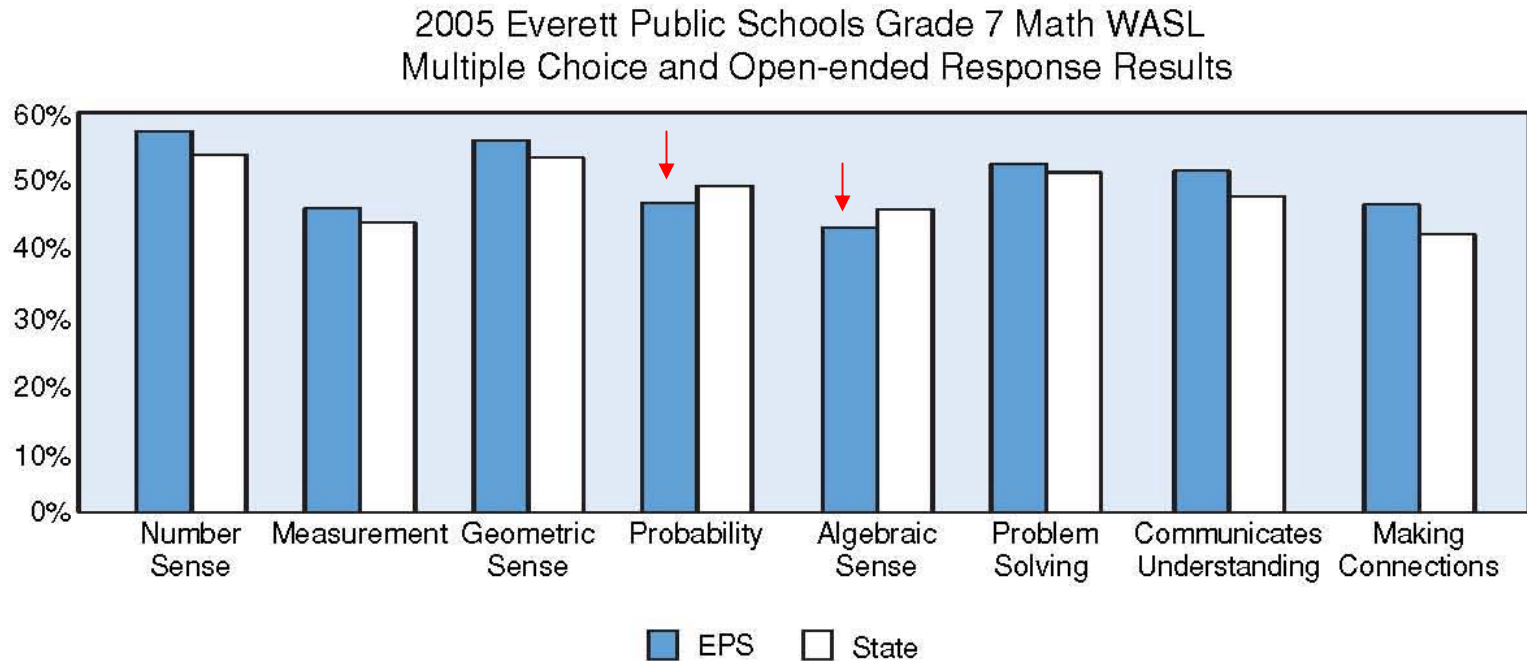
CMP scores are inversely proportionate to Free/Reduced Lunch.



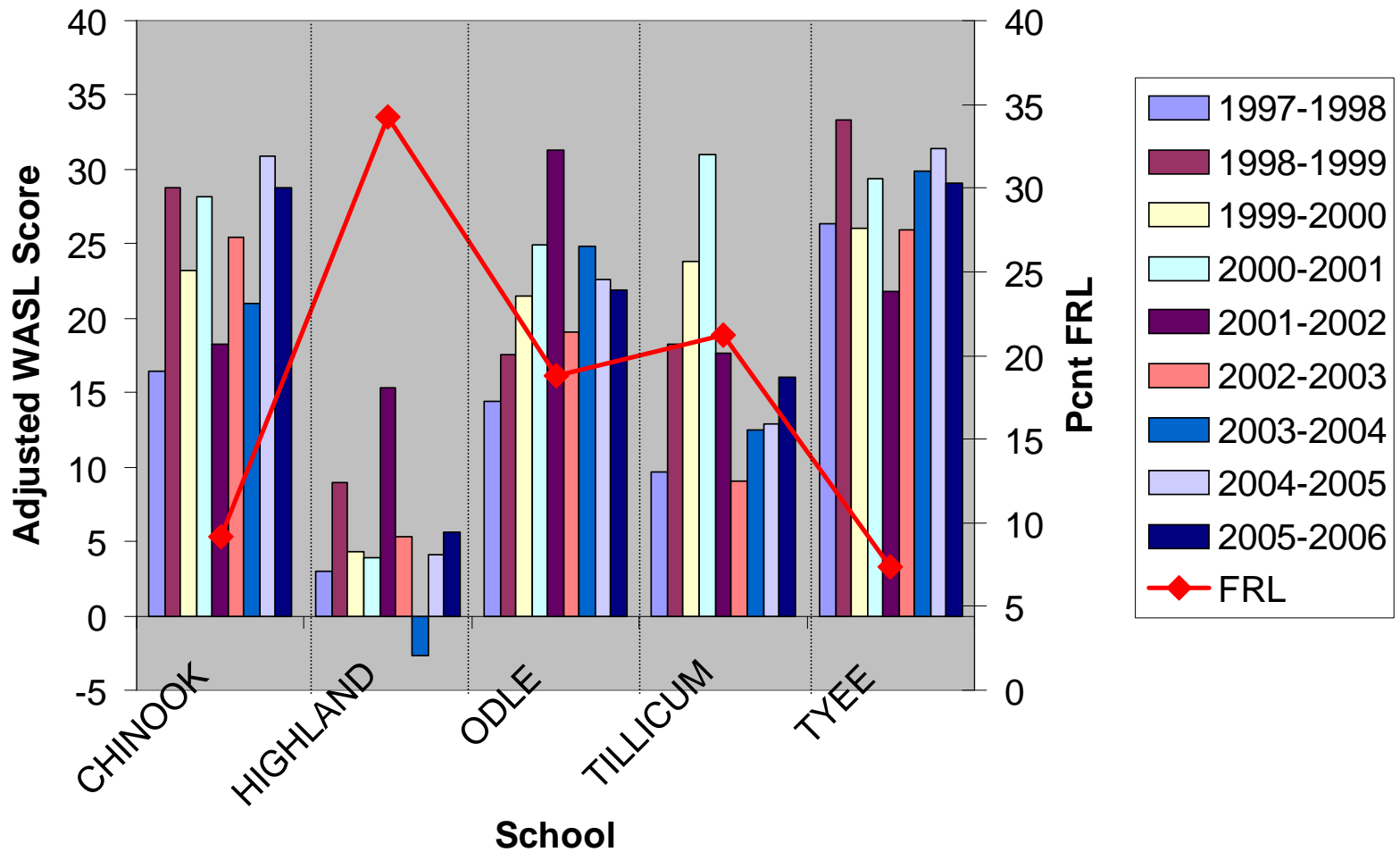
# CMP Case Study - Everett SD

## CMP report 16

Students are weak in **algebraic sense** and **probability**.



# CMP Case Study - Bellevue SD



# How Did Bellevue Do It?

Bellevue SD resources are exceptional.

- Tech Levy - \$51 million
- School Foundation - \$12 million over 26 yrs
- Microsoft Math Partnership – part of \$6 Million
- Gates Grant - \$1.9 million
- Boeing-Bellevue Internal Grant - \$110,000

# How Did Bellevue Do it?

## Other logistical considerations:

- Start CMP in 5<sup>th</sup> grade
- Weekly early release for staff development
- 45.5 hrs of middle school math professional development class in 2006-2007
- Middle school math curriculum/tech site coach
- Additional daily class for struggling students

# Logistical Concerns of CMP2

- Expensive to implement and maintain – continuous funding
- Need longer math period (30 min longer daily) – what to give up?
- Not a spiral curriculum, how to skip a grade or two?
- Need about 190 teaching days to finish all 8 books – expect to skip at least 2 books per grade. Which books (topics) to skip?
- Require parent workshops - actual math is buried deep in text. Parent involvement is harder.

# Content Concerns of CMP2

## Review of 8<sup>th</sup> grade material

- Lack of algebraic content
- lack of review in fraction operations
- solving single variable equation is very weak/missing
- unusual sequence of introducing quadratic equation before single variable is introduced.

# McDougal-Littell is a Balance

- **Discovery based learning** (Constructivist) investigations created by Activity Generator and critical investigations in the textbook
- **Learning by example and algorithms** (Traditional) in textbook
- Practice of both **computational and problem solving skills** focused on higher order thinking skills and reasoning
- In the 2007 edition, 70% of the problems have changed to **emphasize higher order thinking skills**

# Conclusion

- We already have a great school district with high performance in mathematics
- There is no statistical evidence indicating that CMP schools outperformed non-CMP schools
- CMP alone did not result in Bellevue success.
- Create a “safety net” for students failing (i.e. Side-by-Side math classes, double dipping)