



The Center for Educational Effectiveness



## The Center for Educational Effectiveness *School of Distinction for 2011*

### *Methodology & Background Information*

#### **Background**

In July 2007, The Center for Educational Effectiveness (CEE) was contracted to provide independent, third party expertise in a collaborative project with OSPI leadership on the design and analysis of a process to recognize schools demonstrating exceptional improvement in Reading and Math performance. This multi-year view of improvement in Reading and Mathematics is known as the Washington *School of Distinction Award*. CEE's data expertise has evolved over 11 years, through partnerships with over 750 schools and over 180 districts in Washington on the formative use of data to drive school and district improvement.

For 2011, CEE is joined in sponsoring this award by the Washington Chapter of Phi Delta Kappa International, the Washington School Directors' Association (WSSDA), the Washington Superintendents' Association (WASA), the Association of Washington School Principals (AWSP), the Washington Chapter of ASCD (formerly the Association for Supervision and Curriculum Development) (WA-ASCD), and the Association of Educational Service Districts for the state of WA (AESD).

#### **Design Objectives**

The design objectives for this recognition remain consistent with previous years, while the underlying implementation has evolved as we have moved from the WASL to MSP/HSPE/EOC assessments (these three are collectively known as WCAP- the Washington Comprehensive Assessment Program) over the last three years and focus on several factors integral for measuring improvement:

- Acknowledge that schools have a variety of challenges, opportunities and radically different starting points in terms of student performance-- the intention is to recognize improvement across the spectrum of performance-- not simply "getting students to meet standard".
- Recognize improvement over at least a five year period of time.
- Employ a methodology that combines the two foundational skills— literacy and numeracy (Reading and Mathematics) in order to identify and recognize improvement in both areas.
- Create a model which adds value for stakeholders— as additional information, not as a replacement for AYP determination.
- Use publicly available data to ensure transparency and openness.
- Utilize all grades as available: prior to 2011, we used data for grades 4, 7, and 10 only as they were the only grades tested in 2005 and earlier (testing in Reading and Math in grades 3, 5, 6, and 8 started in 2006). For the 2011 awards, 2006 is the "baseline" year and therefore we use data for grades 3-8 and 10.
- Meaningful: recognize a small number of schools who have demonstrated exceptional improvement in a Reading and Math Level Index. All award winners must have at least "adequate performance" in both Reading and Math.

#### **Defining a way to view *Improvement***

NCLB and the AYP calculations use year-to-year results for the "percentage of students meeting standard" and "safe harbor". Since 2004, CEE has used an alternative model based on the Reading and Math Level Indices (RLI and MLI). The RLI and MLI definition dates back to Washington's Commission on Student Learning and the A+ Commission. Used to determine growth targets before NCLB, the strength of these indices is that they represent



the performance of “all students” in the building, not simply those “meeting standard”.

Recall that the WCAP sub-test results are reported in 4 levels of performance: Below Basic (Level-1), Basic (Level-2), Proficient, Met Standard (Level-3) and Advanced (Level-4).

Consider two buildings’ Reading results:

- Building A: 50% of students at Level-1 (Below Basic) and 50% Level-3 (Proficient)
- Building B: 50% of students at Level-2 (Basic) and 50% Level-4 (Advanced)

Both of these buildings would show 50% meeting standard, yet clearly Building B has higher performing students (with no students at Level-1).

The Reading Level Index and Math Level Index are calculated as:

$$\text{RLI or MLI} := (1 * \% \text{ at "Level-1"}) + (2 * \% \text{ at "Level-2"}) + (3 * \% \text{ at "Level-3"}) + (4 * \% \text{ at "Level-4"})$$

While the two buildings listed above have identical “% Meeting Standard” at 50%, their Reading Level Indices would be:

- School A: **2.0** = (1 \* .50) + (3 \* .50)
- School B: **3.0** = (2 \* .50) + (4 \* .50)

If you only looked at “% meeting standard” you would say that these two schools have *identical performance* – but as we see above, this is not the case. The Reading Level Index shows a more accurate picture of performance in these two schools’ performance—with School B students demonstrating higher performance than School A.

CEE has recognized the need for a view of performance that utilizes the Level Indices, and since 2004 has combined the Reading and Math Indices into a single Reading / Math Level Index (RMLI). RMLI is defined as the weighted average of the two indices where weighting is based on the number of students who took each assessment. This combined index helps us achieve several of the design objectives: 1.) an accurate and valid way to look at the spectrum of student performance, 2.) across both Reading and Math, 3.) in a way that is based on easily accessible data.

*Grade Bands:* Note that RLI and MLI are grade specific. I.e. a K-5 elementary school would have an RLI for grade 3 Reading, grade 4 Reading, and grade 5 Reading (and similar for Math). Since, in 2011 we have data in all grades 3-8 and 10, we calculate (as appropriate based on a school’s grade configuration) a single RMLI for 3 bands: grades 3-5 (elementary school band), 6-8 (middle school band), and 10 (high school). For elementary and middle school bands, the RMLI is a weighted average of the grade-specific Reading and Math Level Indices where weighting is based on the number of students at each grade level.

*Trend of Improvement:* Improvement is measured as the linear trend of improvement across the 6 data points (recall that 6 data points are required to obtain 5 steps of improvement). Consider the data depicted in Figure 1: RMLI Example:

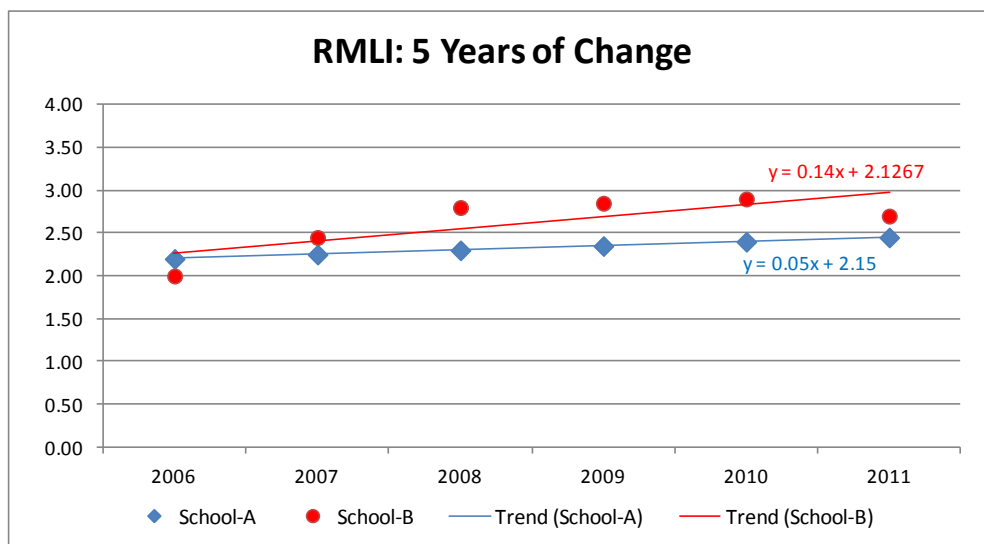
	2006	2007	2008	2009	2010	2011	Change Per Year
School-A	2.20	2.25	2.30	2.35	2.40	2.45	0.05
School-B	2.00	2.45	2.80	2.85	2.90	2.70	0.14

Figure 1: RMLI Example



The trend of change for School-A can be easily seen—improving by 0.05 per year (i.e. the slope of the trend line is +0.05). School-B represents a more realistic example with a linear trend showing a slope of +0.14 change per year. By using the slope of the linear trend line, we mediate for the ups and downs we typically see in a school's results.

Graphically, the data from Figure 1 looks like:



The equations for each trend line are shown on this chart.

Figure 2: Graphical View of RMLI Example

### Data-set Definition

The raw data sources used in this analysis are available from the "Data Files" section of the OSPI Web site's Report Card (see: <http://reportcard.ospi.k12.wa.us/DataDownload.aspx>). Since the state reports one RLI and one MLI for each school for each grade, CEE calculated the grade band RMLI's for each school based on the data downloaded from <http://reportcard.ospi.k12.wa.us/DataDownload.aspx> by school for each year.

### Analysis Methodology

Step 1: Build the data set for all schools in the state for the 2006 – 2011 MSP/HSPE/EOC/WASL years for grades 3, 4, 5, 6, 7, 8, and 10. Calculate grade band RLI and MLI weighted for the number of students assessed in each grade/content area. For grade 10 EOC Math results, data is reported in the 4 performance levels as described above on page 2. Since OSPI does not report level indices for EOC, CEE calculated Level-index values for all grade 10 students (for both EOC-1 (Algebra) and EOC-2 (Geometry)). Recall that OSPI does not report data if less than 10 students are tested in a given grade/content area.

Step 2: Determine if a school is a candidate to be considered in a given band in a given year. For the elementary and middle school bands (grades 3-5 and 6-8 respectively) a school must have data in at least 2 of the 3 possible grades (this was designed to handle different grade configurations such as a K-4 elementary).

Step 3: Determine eligibility for the award: to be eligible to be considered for the award, a school must be a candidate (see step 2) in at least 3 years (out of the 6 years considered), one of which must be 2011. This handles schools who opened after 2006 or extremely small schools who might not have data in all years).



Step 4: Remove schools that did not meet the performance threshold in 2011. The threshold for 2011 was the average RMLI for each grade band.

Step 5: Calculate the slope of the trend line (linear regression line).

Step 6: Determine the “consideration set” in order to determine the number of schools representing five percent. Stack rank the data and count down the number of schools representing five percent.

<b>Grade Band</b>	<b>Total Schools</b>	<b>Number of Schools in 5%</b>	<b>RMLI Minimum Performance Threshold</b>
Elementary (3-5)	1057	53 (52.85)	2.7587
Middle (6-8)	439	22 (21.95)	2.6733
High (10)	335	17 (16.75)	2.9800

The schools identified in this analysis represent exceptional improvement in combined Reading and Math as demonstrated by the students they served over the 2006 – 2011 timeframe.

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#### **For More Information**

**Center for Educational Effectiveness** (CEE) provides data-centric tools, services, consulting, and research and is dedicated to the mission of partnering with K-12 schools & districts to increase student learning by improving the effectiveness of educational institutions. CEE is actively involved in assisting schools and districts in the western United States with research and tools to enhance school improvement efforts. CEE’s tools and services are currently being used by over 850 schools and districts in the western U.S. For more information about CEE data-centered solutions for your school or district, see [www.effectiveness.org](http://www.effectiveness.org) or 425-283-0384.

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