Measuring Student Progress: District Applications
Washington Educational Research Association (WERA)
Spring Conference - March 29, 2012

Introduction: Using Assessment Results to Measure Student Progress at the District Level

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SHORELINE
PUBLIC SCHOOLS

Using Assessment Results to Measure Student Progress at the District Level

Observations

- Accountability pressure to get students to proficiency
- Places a premium on predictive information, raises questions:
    - How do we know when a student is “at standard”? Where is a student in relation to standard?
    - Are we making a difference? Are our programs working? Are more students reaching proficiency the longer they stay with us?
- We examine change in proficiency on the state assessment over time
- In districts we have/use a variety of assessment to give us inferences about (progress in) student achievement
    - State assessment results over time (trend, longitudinal)
    - General outcome measures (Dynamic Indicators of Basic Early Literacy System (DIBELS), AIMSWeb, easyCBM)
    - Interim benchmark assessments (Measures of Academic Progress (MAP))
- We (in districts) make inferences about growth along these scales about probability of reaching proficiency on the state standard
- There is potential for confusion about different assessments and their purposes
- A big part of our job as assessment leaders to “sort out” and “make sense” of these assessment issues. What claims are trying to make about our assessment data? What is our theory of action?

Using Assessment Results to Measure Student Progress at the District Level

Purposes / Outcomes of this Session

- We see different ways of representing data illustrating change in student achievement in districts
- We pause to think about our inferences about change in student achievement from different ways of looking at data

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Growth Inferences from District and State Assessments: A Look at Elementary Reading

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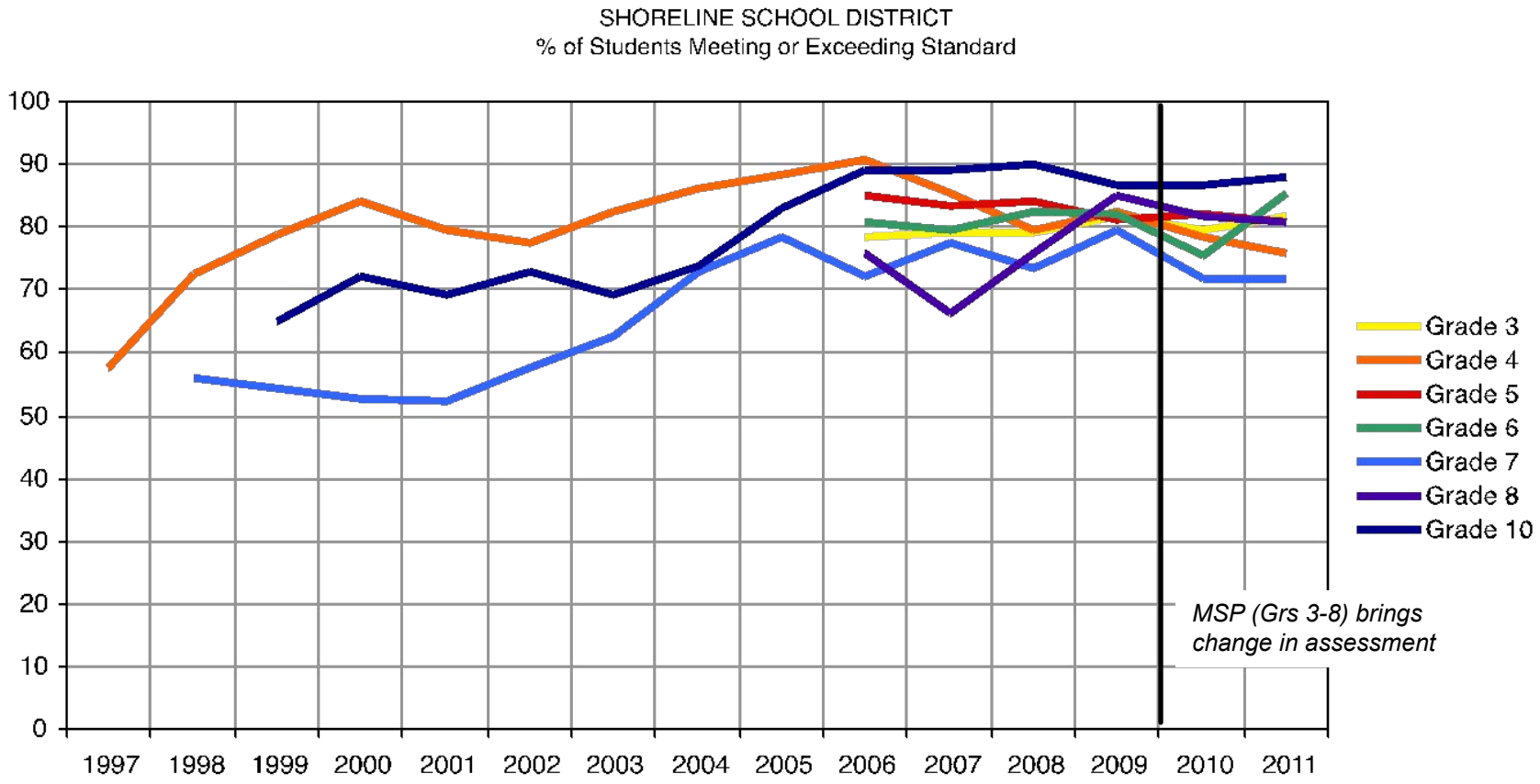
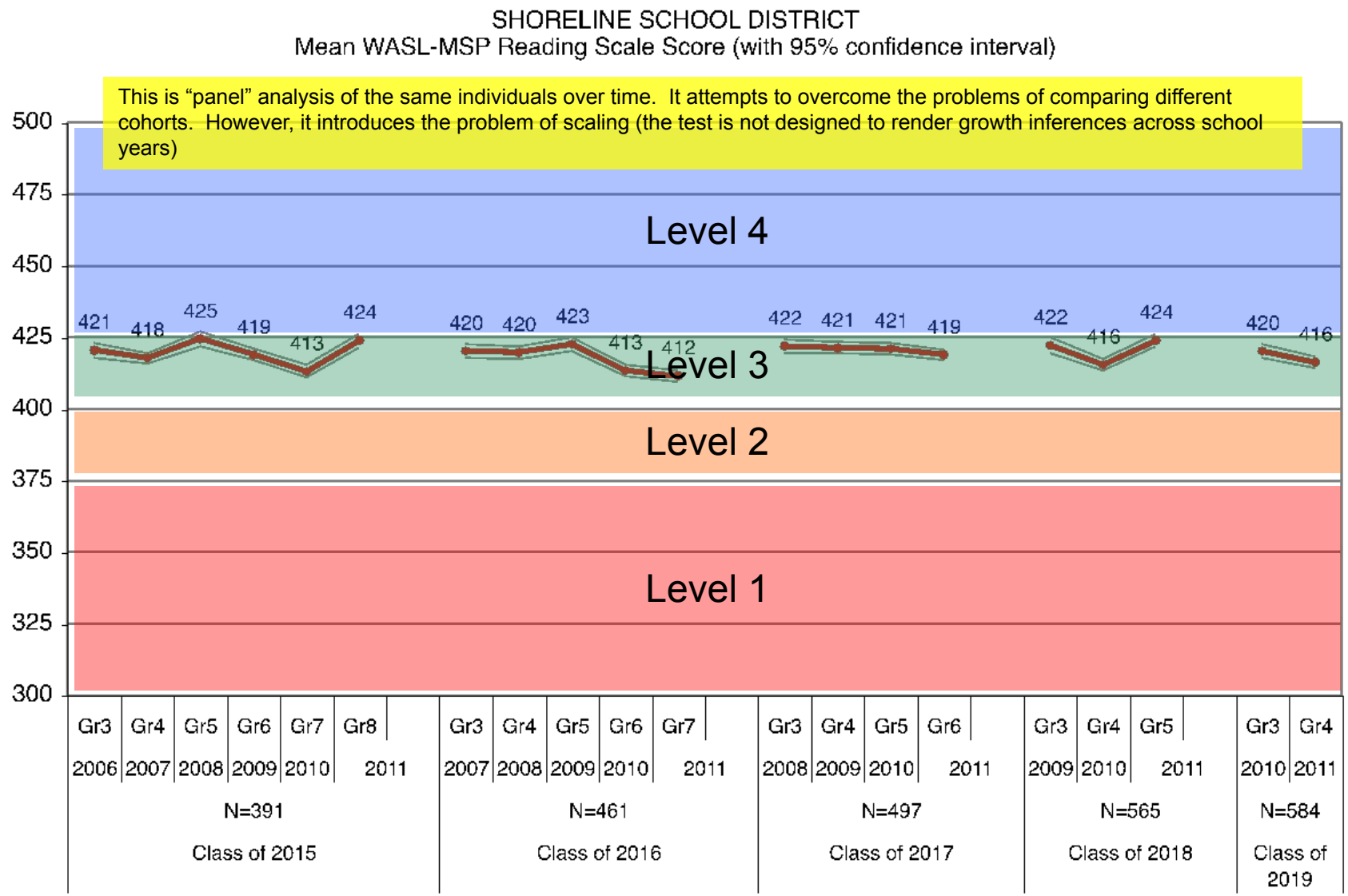
State assessment performance trends in READING



This are trend lines of proficiency over time, comparing the status of different cohorts of kids at the same age (4th graders). The growth inference is the school or system's ability to raise successive cohorts to proficiency

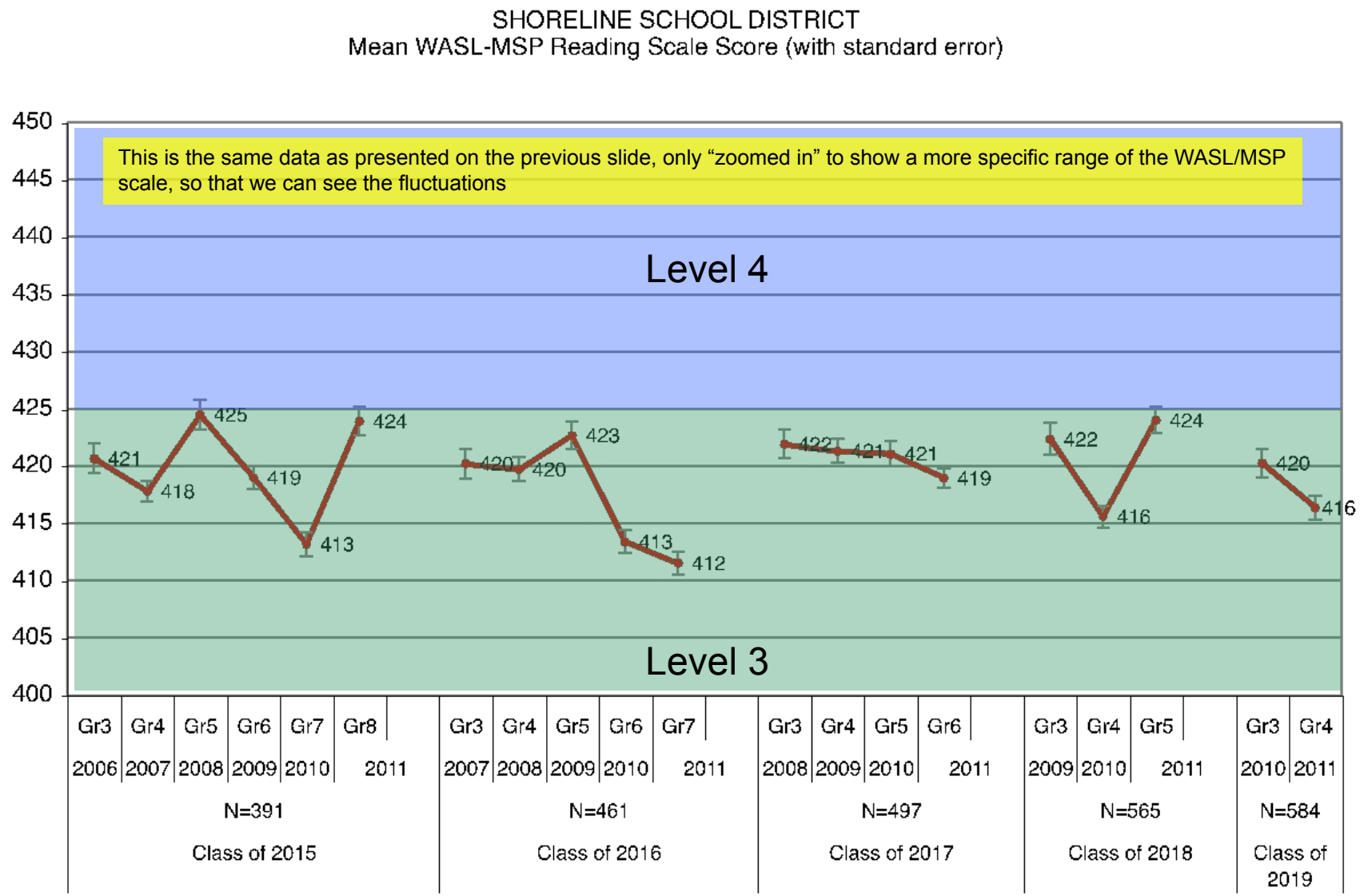
Source: OSPI Report Card (http://reportcard.ospi.k12.wa.us)

Panel* analysis of WASL-MSP achievement over time, 2007-2011
READING



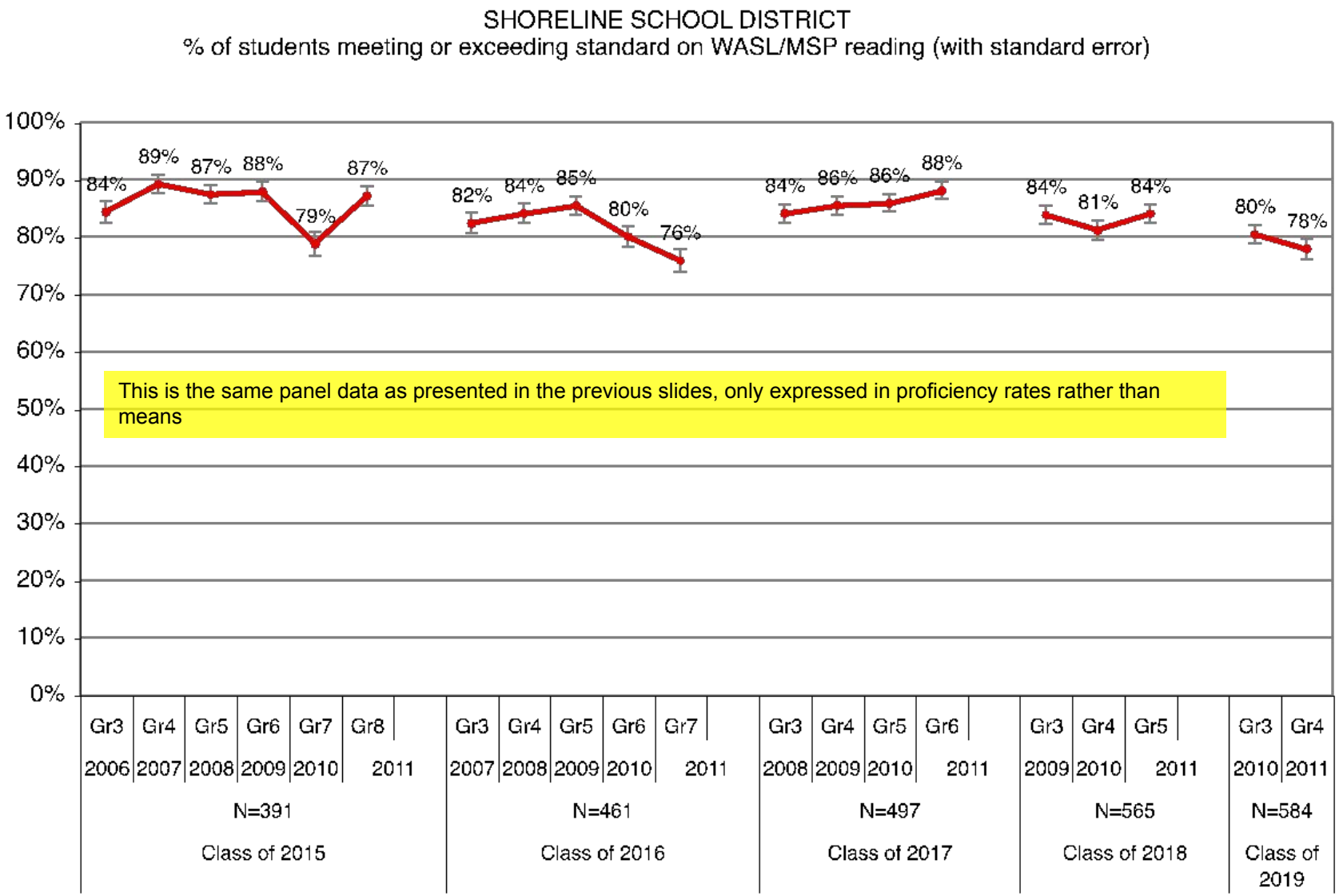
*Panel analysis follows the *same individual students over time*. Scores of students who enter or leave within this time frame are excluded.

Panel* analysis of WASL-MSP achievement over time, 2007-2011
READING



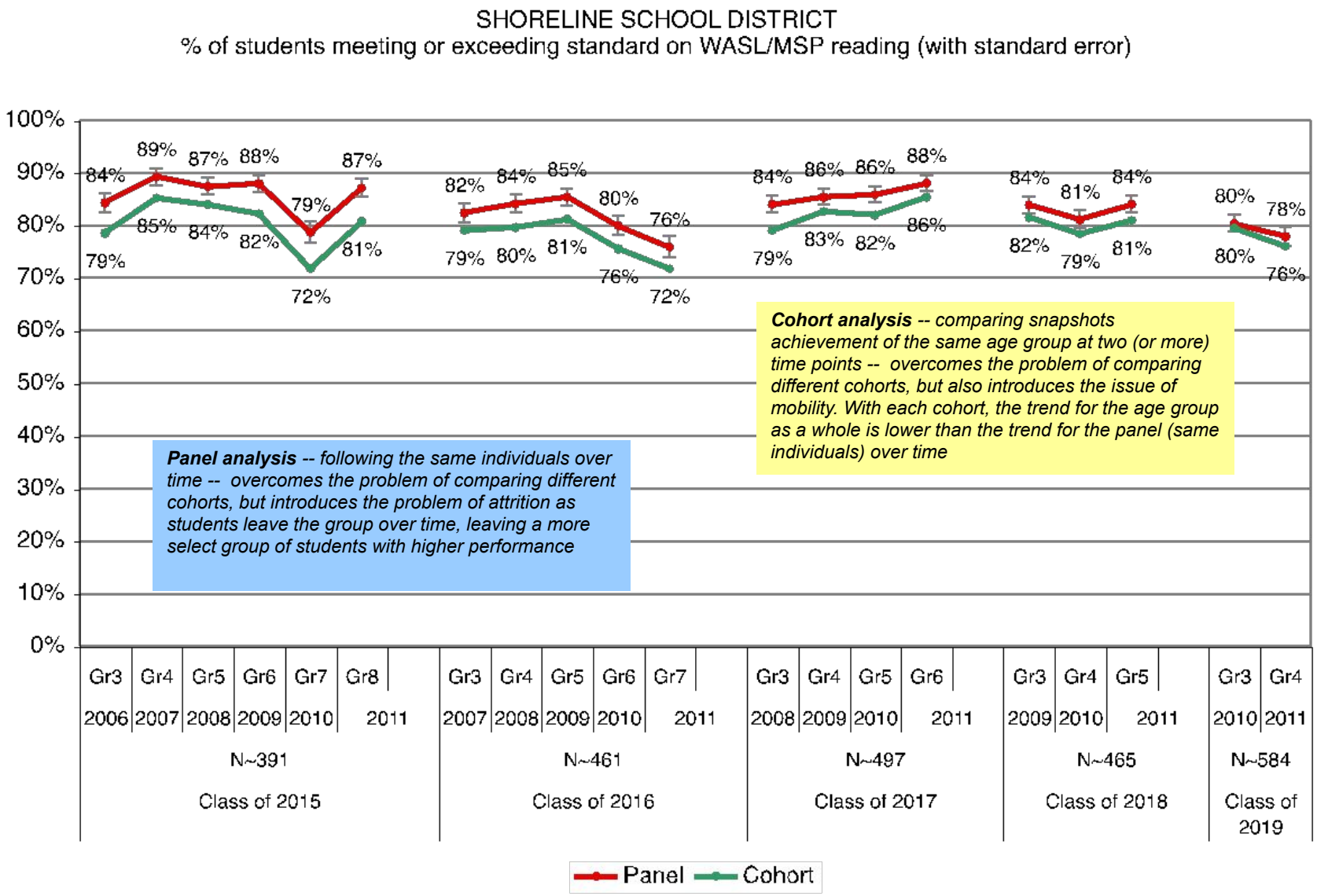
*Panel analysis follows the *same individual students over time*. Scores of students who enter or leave within this time frame are excluded.

Panel* analysis of WASL-MSP achievement over time, 2007-2011 READING



*Panel analysis follows the *same individual students over time*. Scores of students who enter or leave within this time frame are excluded.

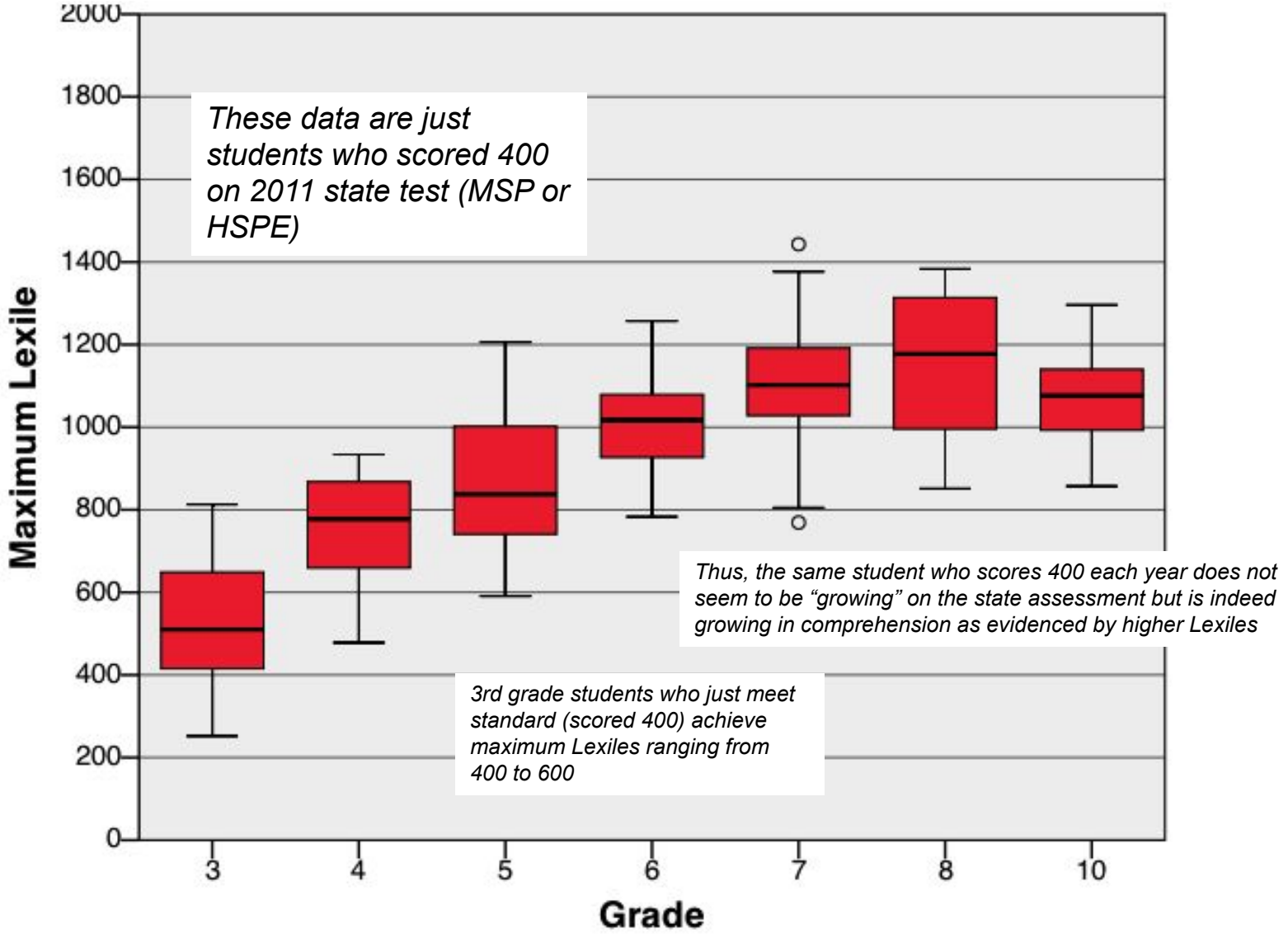
Cohort vs. Panel: What's the difference?



Panel analysis *-- following the same individuals over time -- overcomes the problem of comparing different cohorts, but introduces the problem of attrition as students leave the group over time, leaving a more select group of students with higher performance*

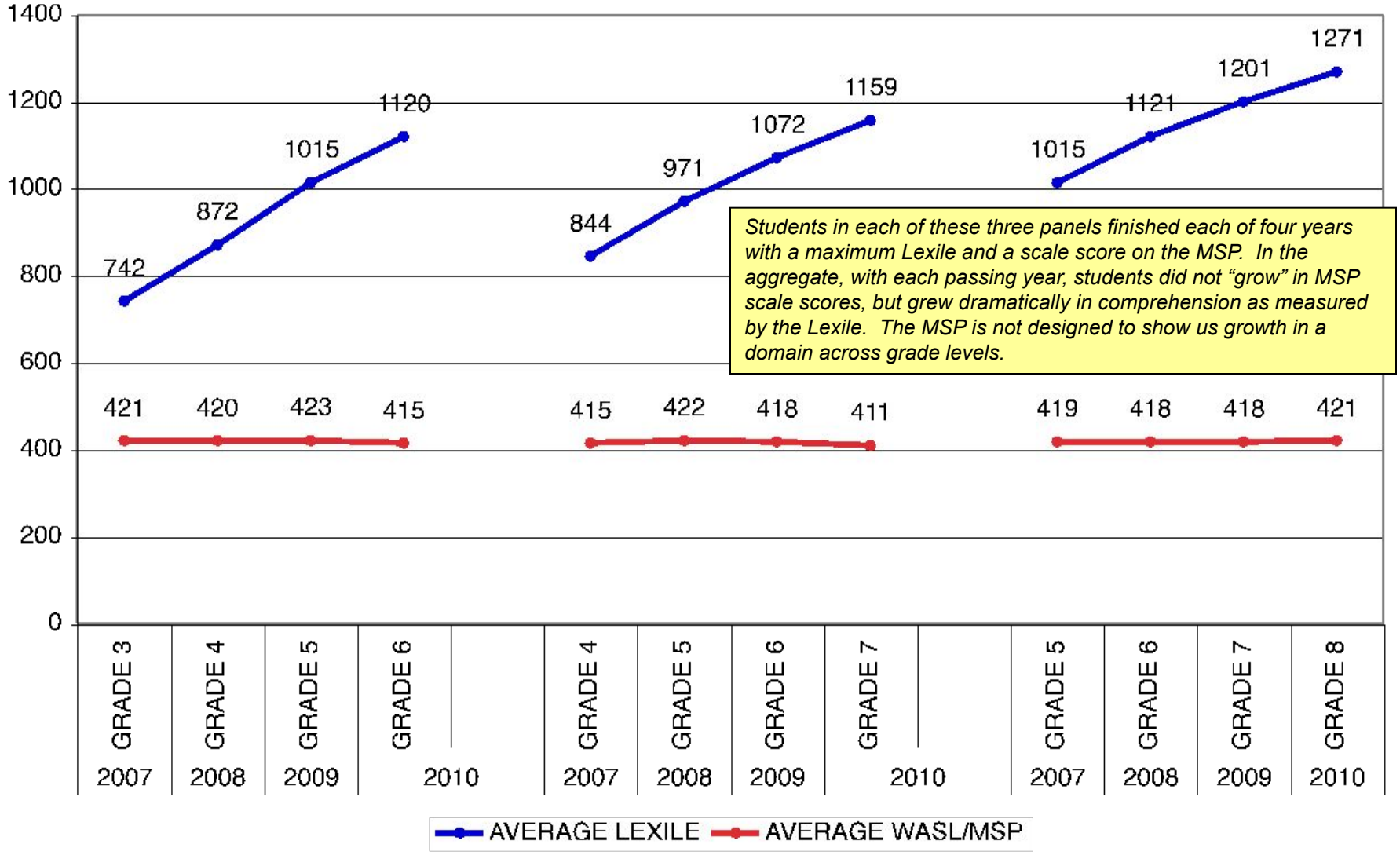
Cohort analysis *-- comparing snapshots achievement of the same age group at two (or more) time points -- overcomes the problem of comparing different cohorts, but also introduces the issue of mobility. With each cohort, the trend for the age group as a whole is lower than the trend for the panel (same individuals) over time*

PANEL ANALYSIS: THE ISSUE OF SCALING
Lexile ranges of MSP proficiency (scale score 400)*



*Sample is students who scored 400 on Spring 2011 MSP-HSPE reading test

PANEL ANALYSIS: THE ISSUE OF SCALING
Growth in Reading, Longitudinal Student Panels, 2007 to 2010

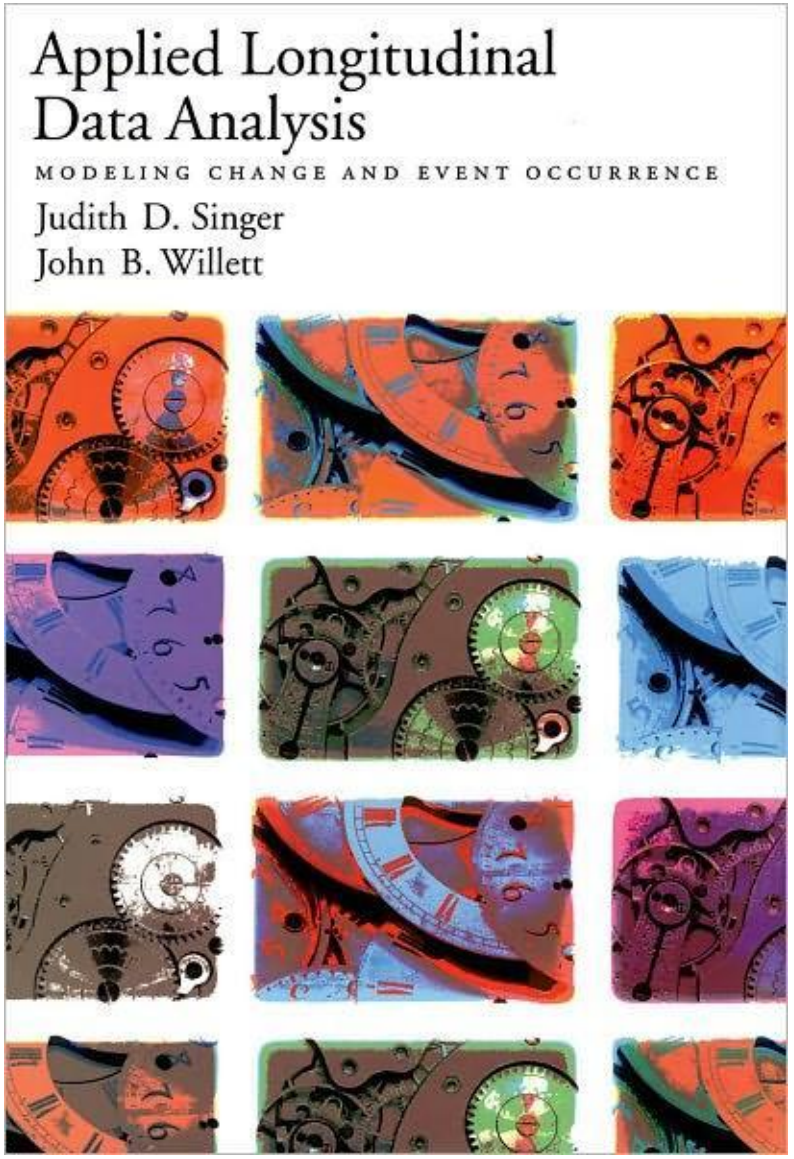


Students in each of these three panels finished each of four years with a maximum Lexile and a scale score on the MSP. In the aggregate, with each passing year, students did not "grow" in MSP scale scores, but grew dramatically in comprehension as measured by the Lexile. The MSP is not designed to show us growth in a domain across grade levels.

Requirements for Longitudinal Analysis

What kind of data do we need to measure growth?

- The same students are measured at more than one point (preferably at least three points) in time
- A sensible metric for clocking time
- A continuous outcome whose values change systematically over time
- "outcome scores must be equatable over time--a given value of the outcome on any occasion must represent the same "amount" of the outcome on every occasion" (13)



Evaluation / Research Questions

What counts as evidence that our district Learning Assistance Program (LAP) reading service is "working" in Shoreline?

- What is the effect of LAP reading service on reading comprehension over time?
- Do students who receive LAP reading service grow in reading comprehension over time?--and at what rate of growth? Do they "catch up" to their peers over time?
- To what extent is the effect of LAP reading service unique to one group of students, or robust across multiple groups of students?

Methods

Outcome measure

- The outcome measure is the **SRI/Lexile reader ability**. The Scholastic Reading Inventory (SRI) is a computer-adaptive assessment of inferential comprehension
- Produces reader ability scores on a vertical scale (spanning across grade levels) ranging from 0 to 2000
- Shoreline has used the SRI to assess students in grades 3-10 since 2007
- Data source is all Lexile scores for all students since 2007

Predictor measures

Demographic predictor data comes from the **WASL score files** from 2007 to 2011, including, for each year:

- Grade level (WASL/MSP grades 3-10)
- LAP reading service (Y/N)
- Title reading service (Y/N)
- Special education service (Y/N)

WASL/MSP demographic data was linked to Lexile data in order to group average Lexile scores by age group and LAP service. As students take Lexile more than once in a year, students are duplicated in the Lexile data.

Methods

Graduation Year	2007	2008	2009	2010	2011
2020					3
2019				3	4
2018			3	4	5
2017		3	4	5	6
2016	3	4	5	6	7
2015	4	5	6	7	8
2014	5	6	7	8	9
2013	6	7	8	9	10
2012	7	8	9	10	11
2011	8	9	10	11	12
2010	9	10	11	12	
2009	10	11	12		
2008	11	12			
2007	12				

After five years of SRI testing, Shoreline has a good base of Lexile data for longitudinal analysis.

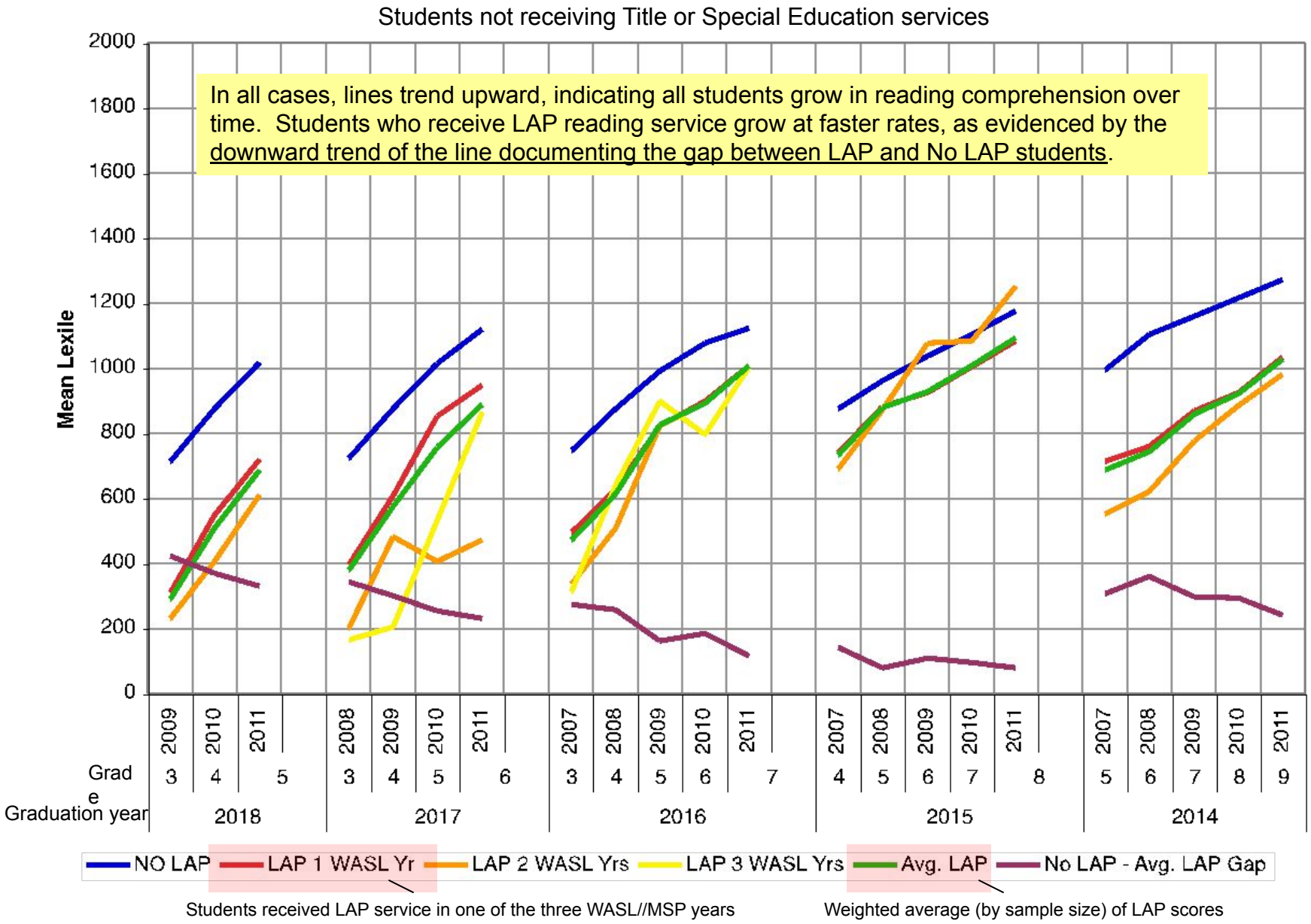
By combining the Lexile test year with the student grade level in the same WASL year, we identified the graduation year of the students in order to treat them as cohorts

Here we examined the Classes of 2014 through 2018 to measure the effect of elementary LAP reading service on reading comprehension over time

Looking at several cohorts enables us to:

- See if LAP has a positive impact on reading over time
- See if this positive impact is unique to one cohort or holds up across cohorts
- Compare the effect of LAP across different ages of students

LAP gains in Lexile reading comprehension



LAP gains in Lexile reading comprehension

Counts of Lexile scores*

Graduation Year	Grade in Test Year	Test Year	NO LAP	LAP 1 WASL Yr	LAP 2 WASL Yrs	LAP 3 WASL Yrs
2018	3	2009	1,578	35	11	
	4	2010	1,658	57	22	
	5	2011	1,923	45	20	
2017	3	2008	1,348	49	2	2
	4	2009	1,514	46	4	3
	5	2010	1,594	57	12	6
	6	2011	1,764	56	8	3
2016	3	2007	1,164	48	4	4
	4	2008	1,243	46	7	3
	5	2009	1,421	41	6	3
	6	2010	1,641	44	8	4
	7	2011	1,008	34		4
2015	4	2007	923	52	9	
	5	2008	1,131	69	6	
	6	2009	1,422	92	2	
	7	2010	982	65	3	
	8	2011	963	47	4	
2014	5	2007	1,071	64	13	
	6	2008	1,422	95	14	
	7	2009	1,004	99	12	
	8	2010	1,036	110	14	
	9	2011	1,034	96	16	

Remember this means a student was marked as receiving LAP reading service on three different years that s/he took the WASL/MSP

*Not counts of students because students take SRI multiple times in a school year; in this sense, students are *duplicated* in these data.

References

Singer, J. D., & Willet, J. B. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence*. Oxford University Press.