NCAASE National Center on Assessment and Accountability for Special Education

Advancing research on growth measures, models, and policies for improved practice

Critical Issues in Studying Growth on State Tests for Students with Disabilities

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Session Abstract

This presentation focuses on areas critical to understanding achievement growth for students with disabilities on state tests. Specifically, we discuss (a) growth by disability; (b) disability classification changes in interpreting growth; and (c) opportunity to learn and growth on curriculum based measures as predictors conditioned by disability status.

Suggested outline

- NCAASE Overview – IES Cooperative Agreement
- NCAASE Sample Findings-Highlights
  - Methodological challenges in studying growth for students with disabilities (PA slides, Once sometimes slides)
  - Growth in students with disabilities (reading & math growth on general test, ORF, alternate)—think we have too much to present here
  - Understanding the determinants of growth-Opportunity to learn study
- Future Directions

NCAASE 2011-2016
Key Research Questions

1. What is the natural developmental progress in achievement for students with disabilities?
2. What models best characterize achievement growth for students with disabilities who are participating in general achievement tests?
3. How do various growth models represent school effects for students with and without disabilities, and how do results compare to those derived from the status models now in us?
4. How do results from different types of interim assessments of students' achievement meaningfully contribute to a model of academic growth for students with disabilities?
5. How can information about opportunity to learn and achievement growth be used to enhance academic outcomes for students with disabilities?

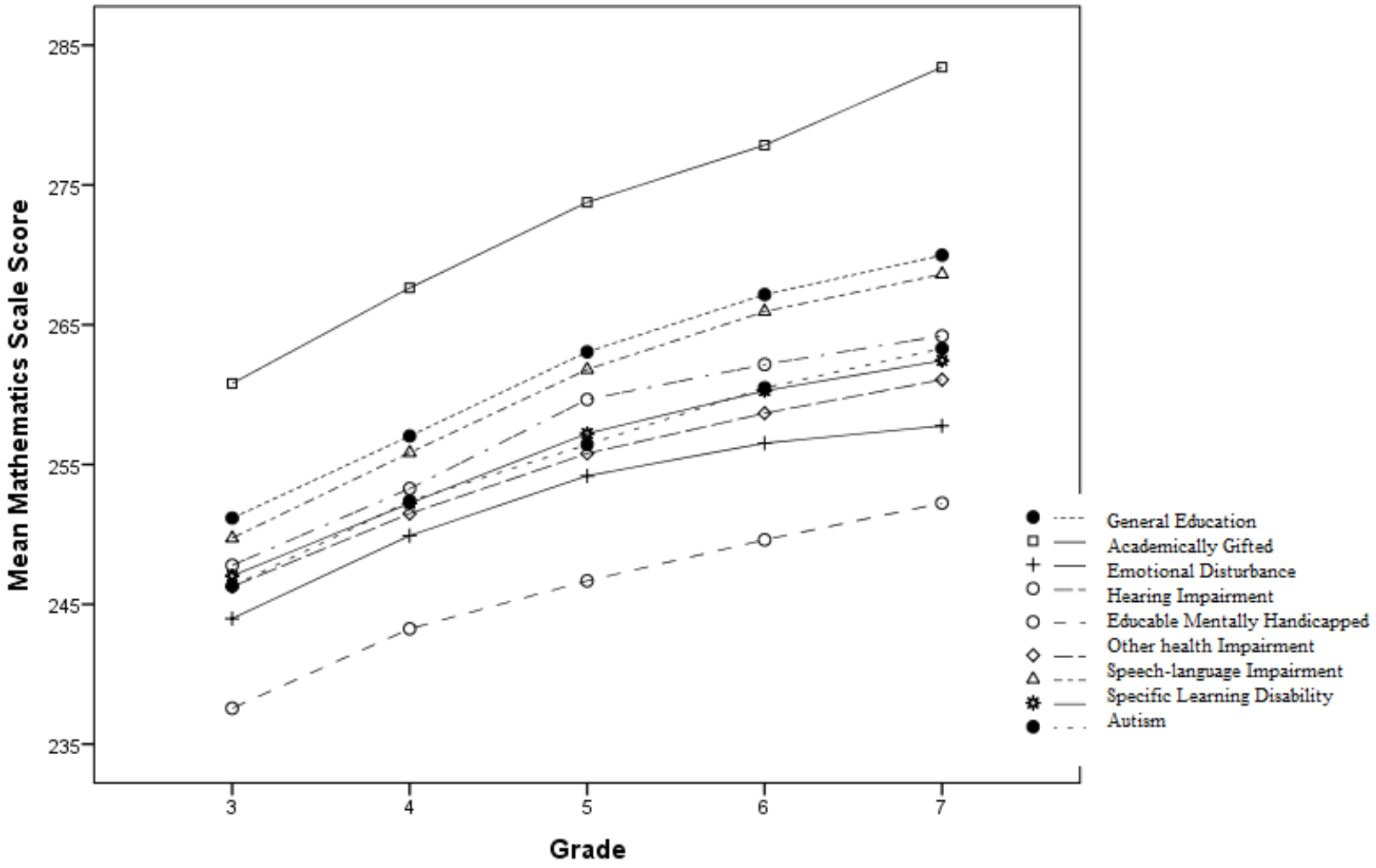


Figure 1. Mean mathematics achievement by grade and student group.

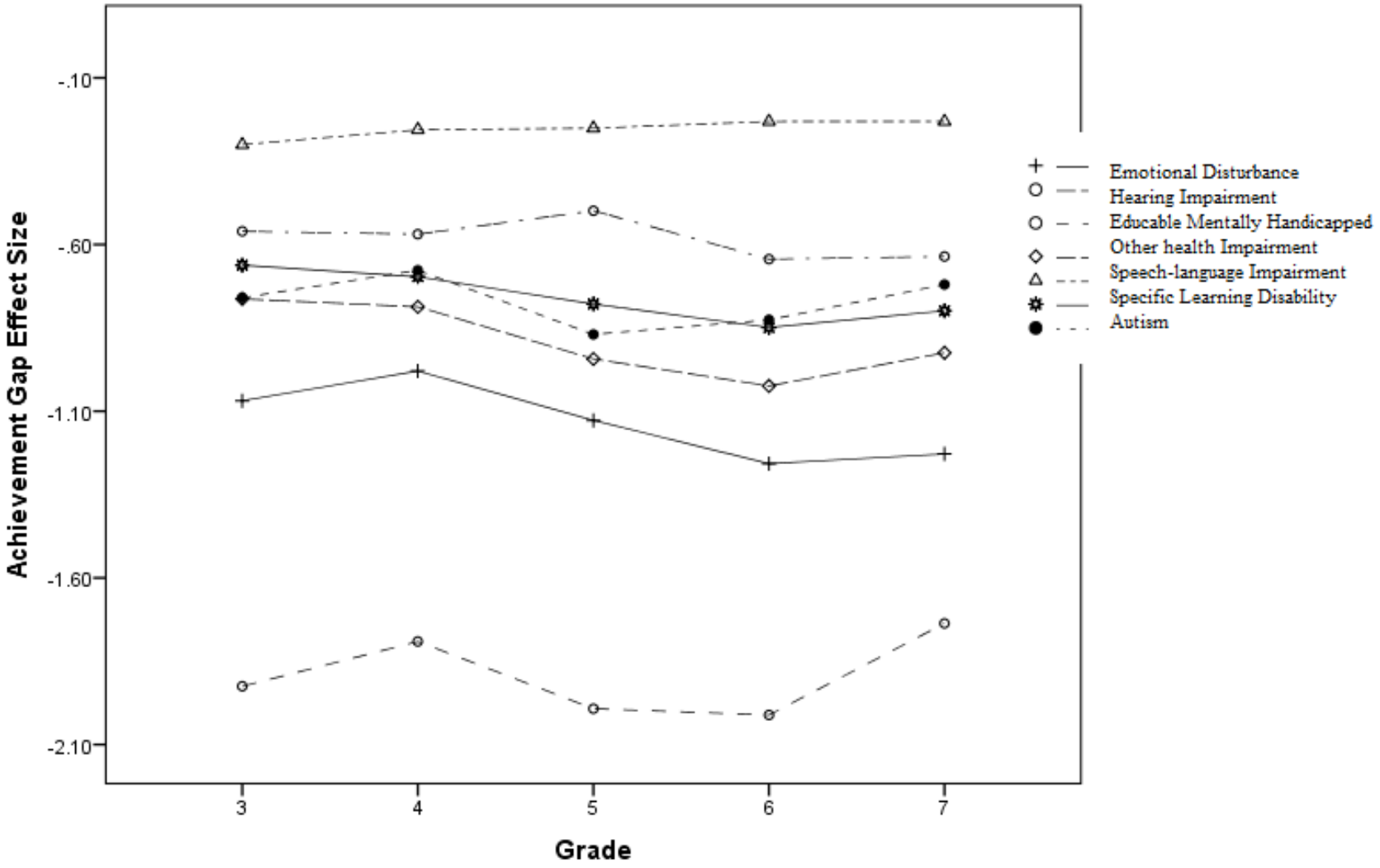


Figure 2. Achievement gap effect sizes between all SWoD students and exceptionality group by grade.

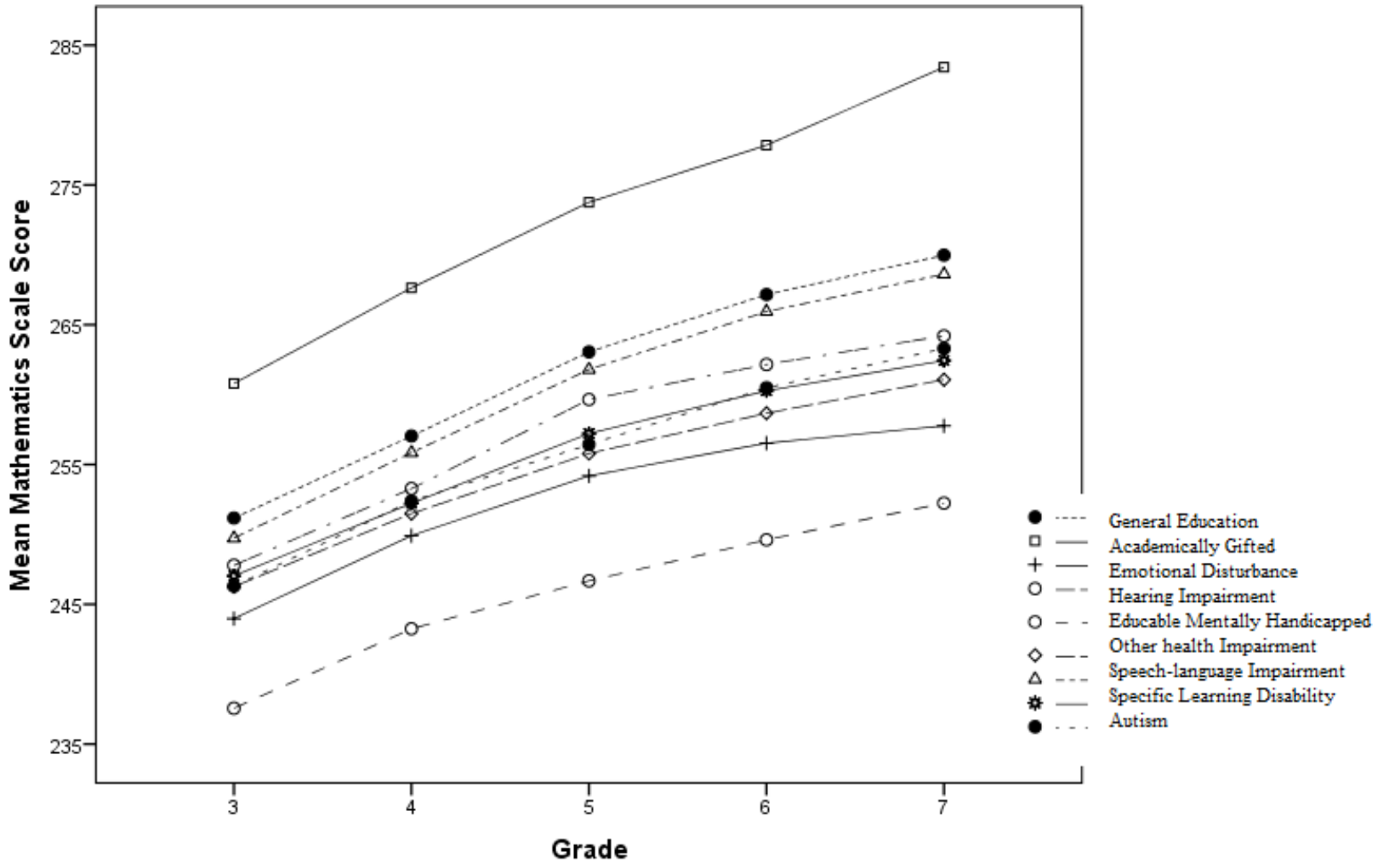


Figure 3. Ann will insert reading results with similar format

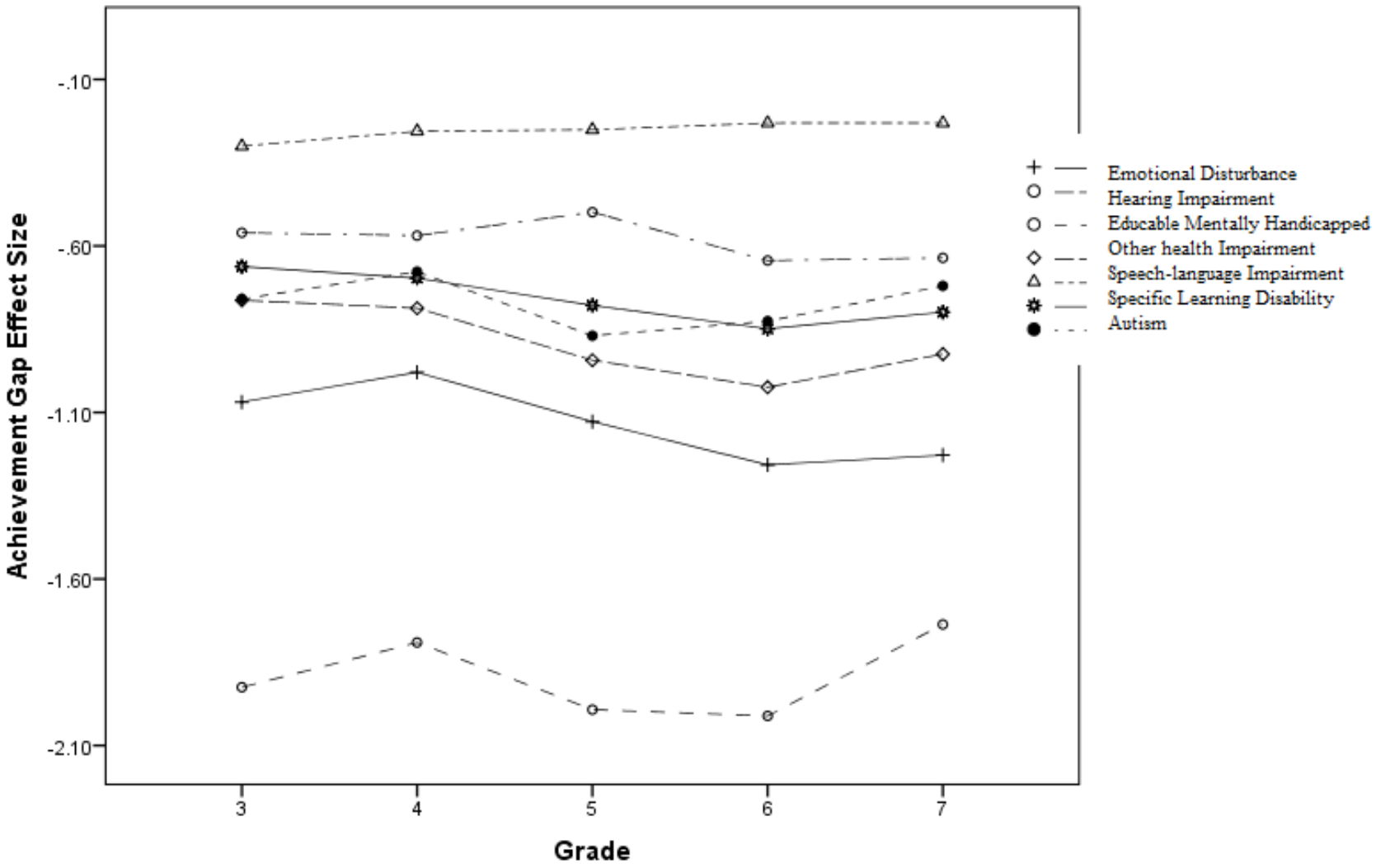


Figure 4. Ann will insert results for reading with similar format

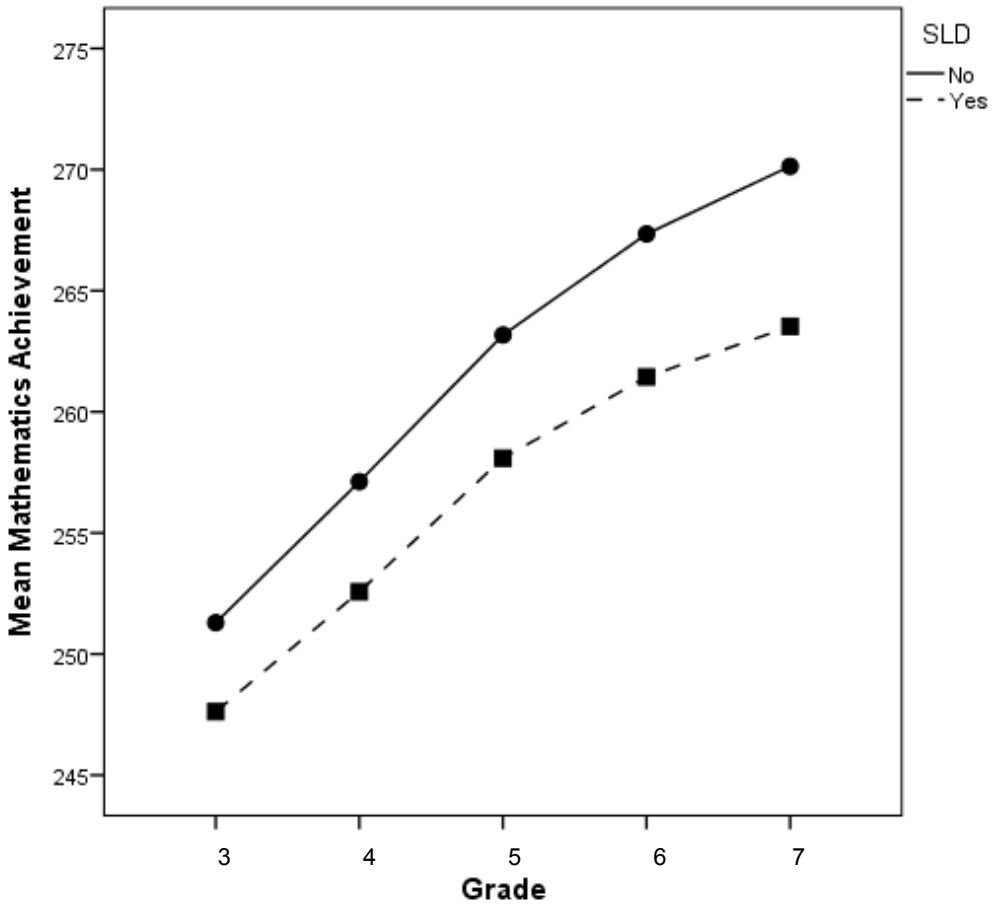


Figure 5. Mean mathematics achievement by grade and LD status.

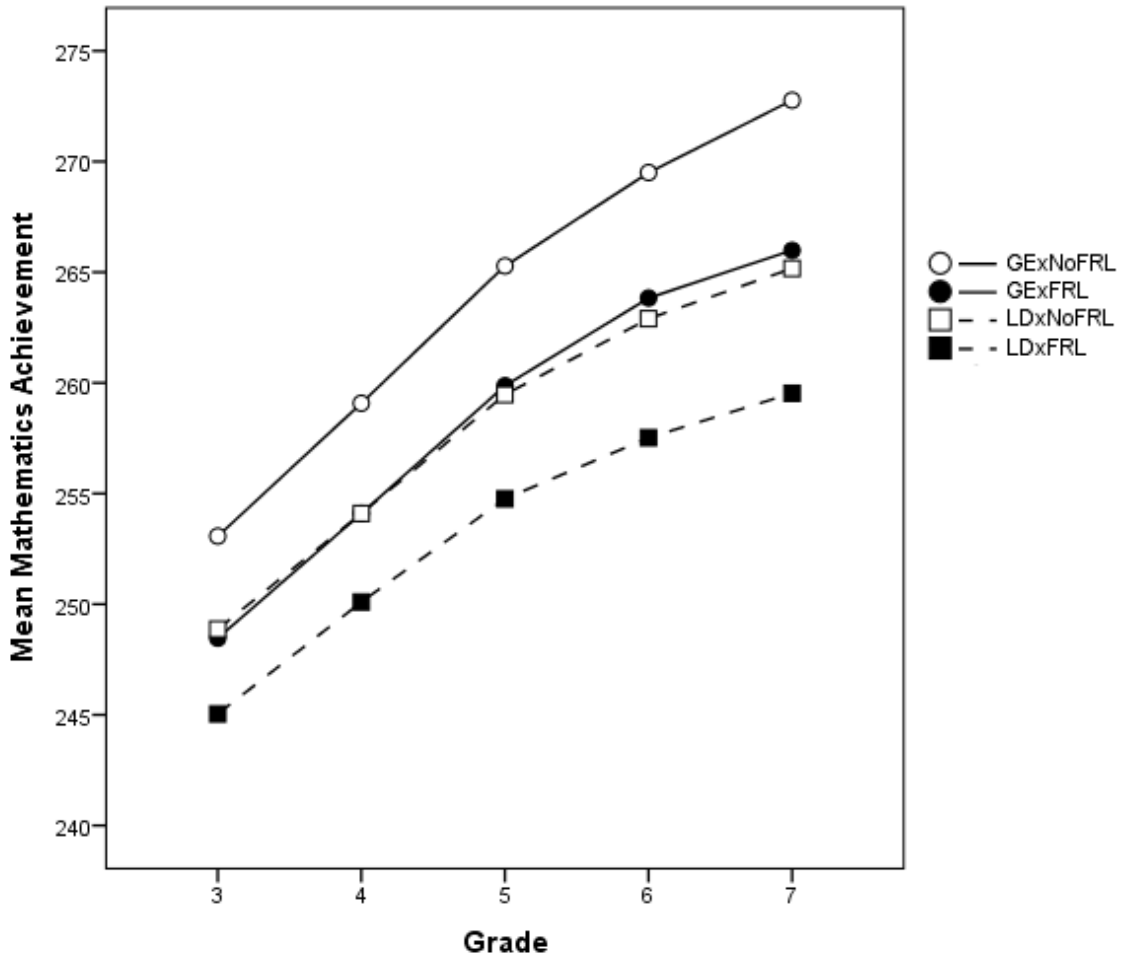


Figure 6. Interaction of LD Status With FRL Status on Mathematics Achievement Growth.

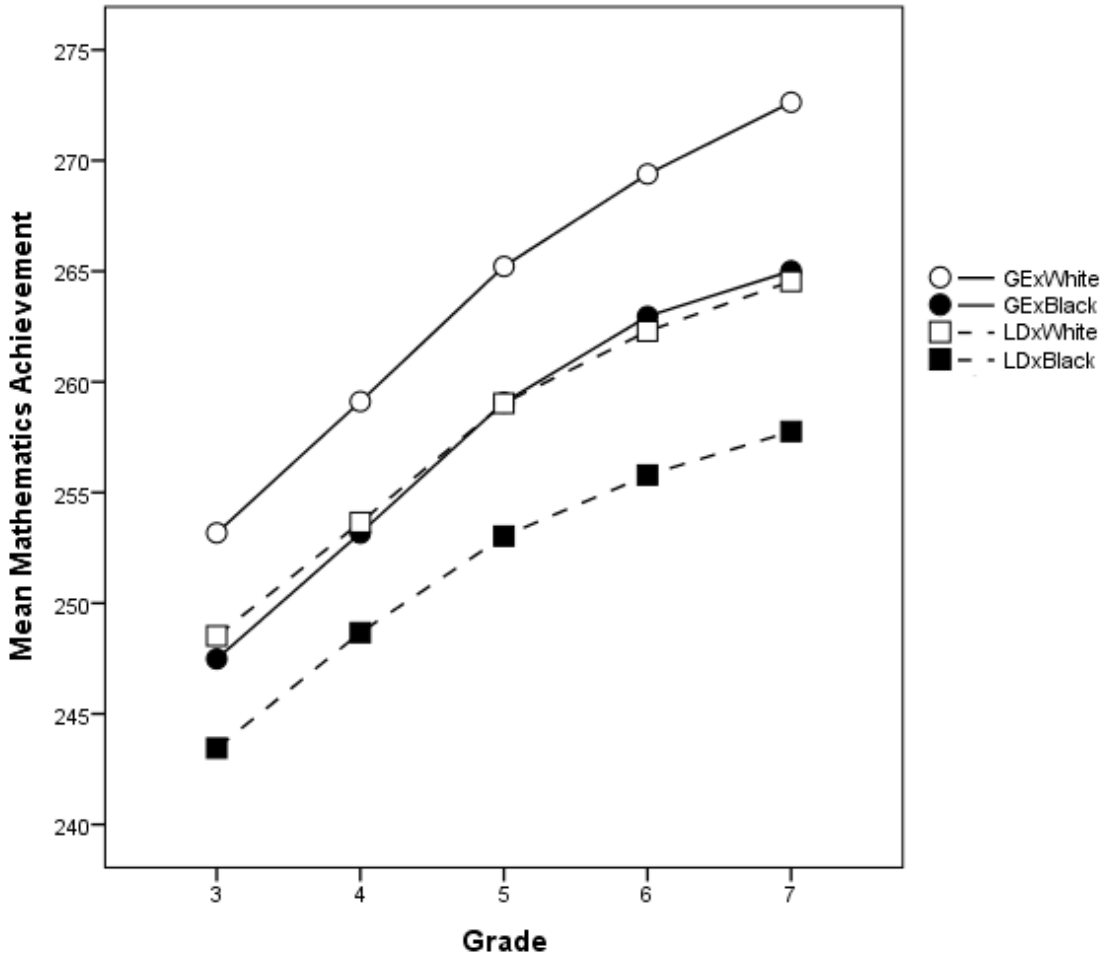
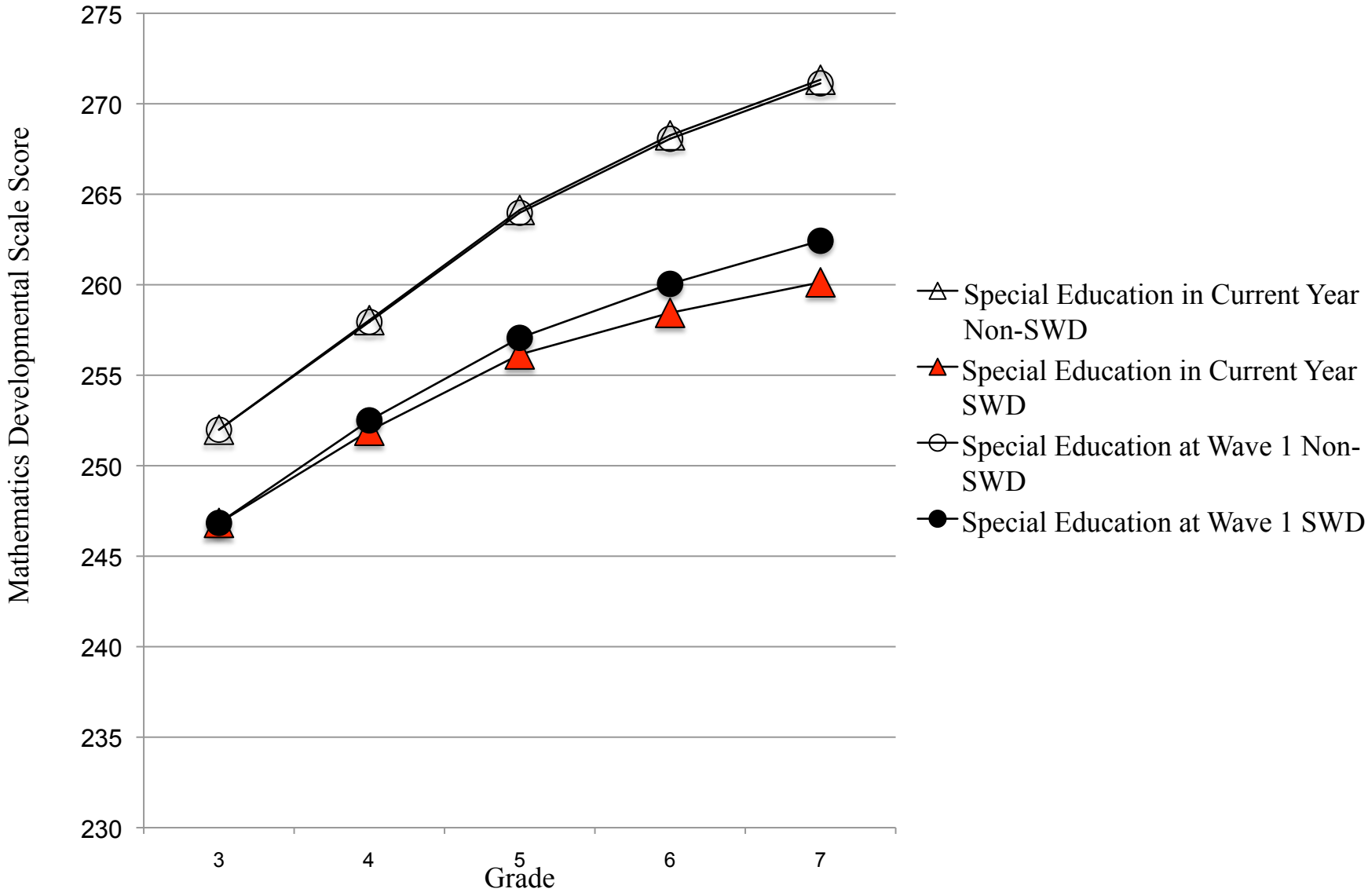
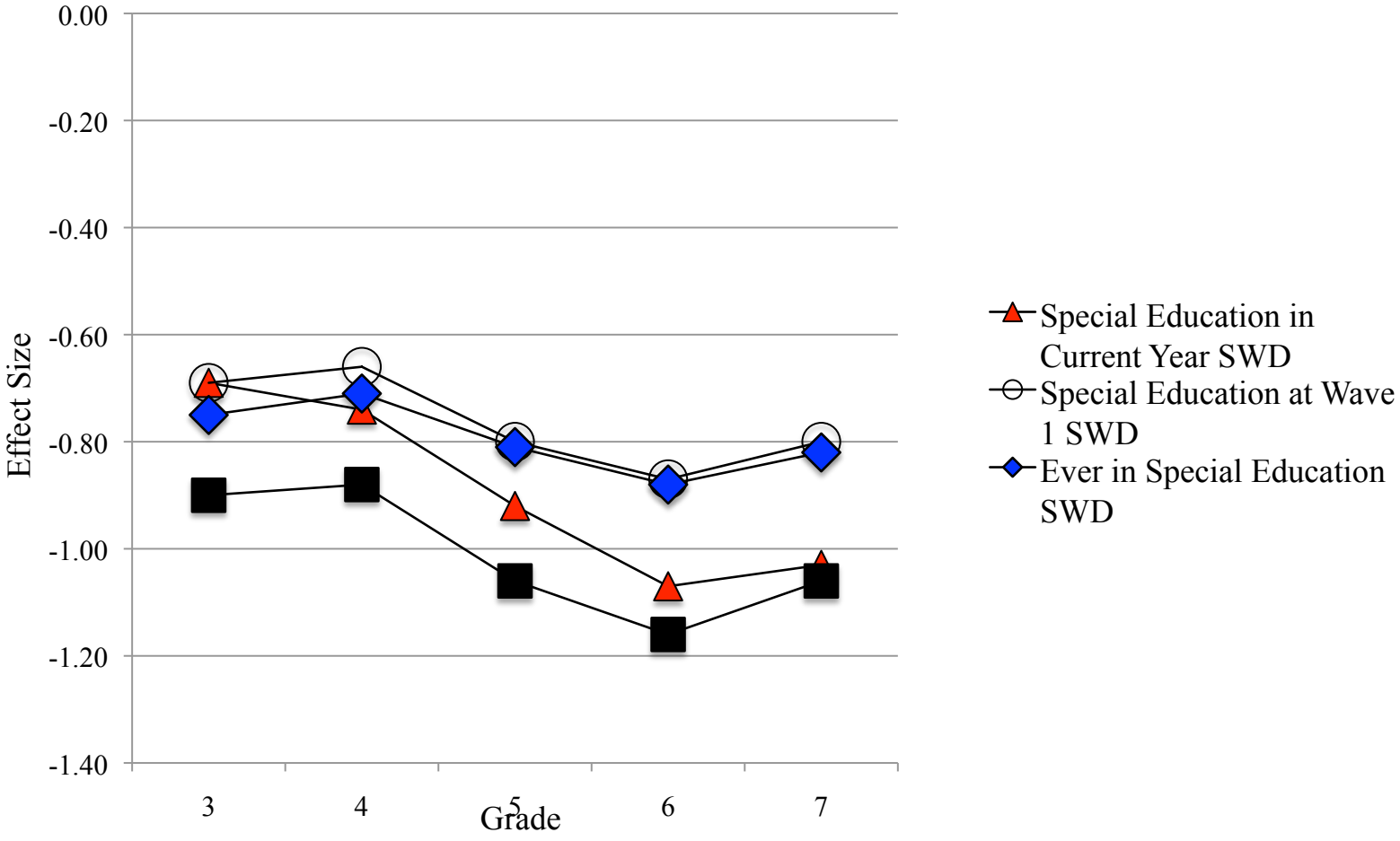


Figure 7. Interaction of LD Status With Black Race/ethnicity on Mathematics Achievement Growth.


Mathematics Developmental Scale Score
275
270
265
260
255
250
245
240
235
230
3
4
5
6
7
Grade
Special Education in Current Year Non-SWD
Special Education in Current Year SWD
Special Education at Wave 1 Non-SWD
Special Education at Wave 1 SWD

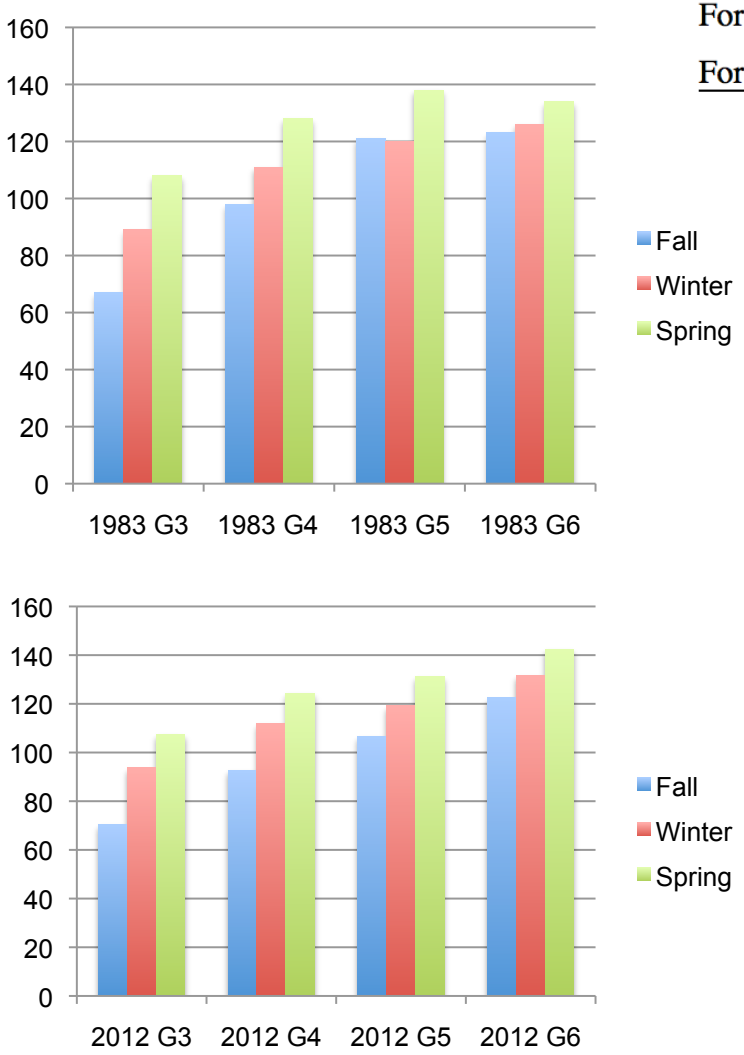
Once • Always • Ever



Findings on Oral Reading Fluency

- A 30 year history of oral reading fluency
  - Stability across researchers, measures, time periods, and populations
  - One word per week growth
- Findings on progress monitoring for students with disabilities (and considering measurement conditions)
- Stratified random sample of students for establishing norms (easyCBM)

Findings on ORF



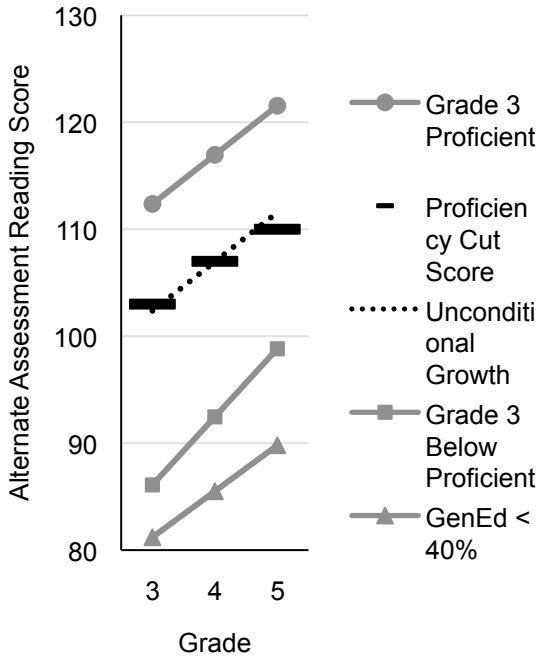
Grade 4 Unconditional Model with Intercept and Slope

Fixed Effect	Coefficient	Std. Error	*t*-ratio	*df*	p-value
For intercept	97.10	1.36	71.38	958	<0.001
For slope	0.65	0.04	17.52	958	<0.001

Grade 4 Conditional Model with Student Characteristics and Measurement Conditions

Fixed effect	Coefficient	*SE*	*t*-ratio	*df*	*p*-value
Intercept	115.61	2.70	42.83	952	<0.001
Sex	-0.93	2.47	-0.38	952	0.707
Disability	-25.32	3.71	-6.82	952	<0.000
Ethnicity	-1.56	2.58	-0.61	952	0.545
ELL	-23.83	3.90	-6.11	952	<0.001
Grade Level	-11.04	4.13	-2.67	952	0.008
Performances	-2.52	0.38	-6.60	952	<0.001
Slope	0.72	0.08	8.87	952	<0.001
Sex	-0.10	0.07	-1.34	952	0.181
Disability	-0.07	0.10	-0.72	952	0.472
Ethnicity	0.01	0.08	0.15	952	0.879
ELL	0.26	0.13	1.98	952	0.047
Grade Level	0.02	0.10	0.24	952	0.809
PRFs	0.00	0.01	0.56	952	0.579

Growth for SWSCD



Transition Matrix from Grade 3 (2009) to Grade 4 (2010)

		Grade 4				
		Low	Nearly Meets	Meets	Exceeds	Level Change
Grade 3	Low	156	35	9	0	
	Nearly Meets	33	53	48	8	0 (-3 levels)
	Meets	5	40	143	114	17 (-2 levels)
	Exceeds	0	1	21	115	197 (-1 level)
	Level Change		0 (+3 levels)	6 (+2 levels)	94 (+1 level)	467 (no change)

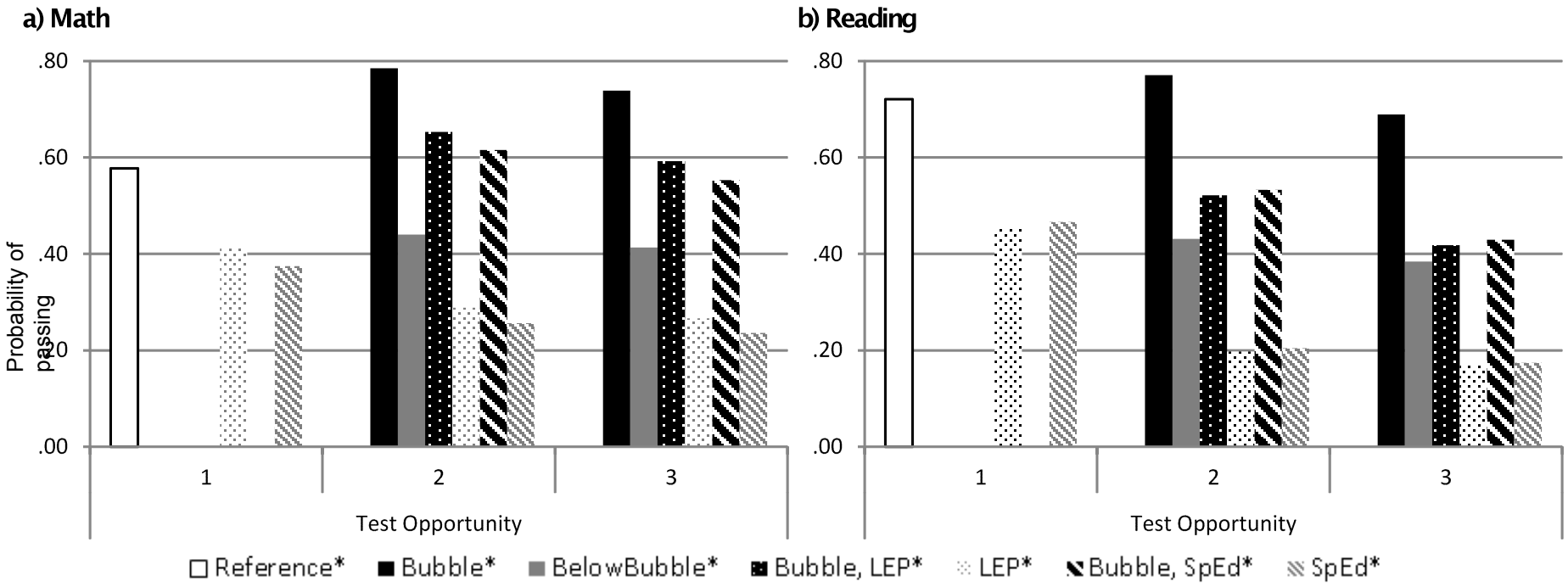
Note. There were no students in the lowest level (*Very Low*). Level Change indicates the number of students that changed achievement level (i.e., sum of the diagonal and off-diagonals).

Transition Matrix from Grade 4 (2010) to Grade 5 (2011)

		Grade 5				
		Low	Nearly Meets	Meets	Exceeds	Level Change
Grade 4	Low	163	13	3	0	
	Nearly Meets	42	48	29	4	0 (-3 levels)
	Meets	15	28	99	49	7 (-2 levels)
	Exceeds	3	2	41	95	91 (-1 level)
	Level Change		3 (+3 levels)	17 (+2 levels)	111 (+1 level)	405 (no change)

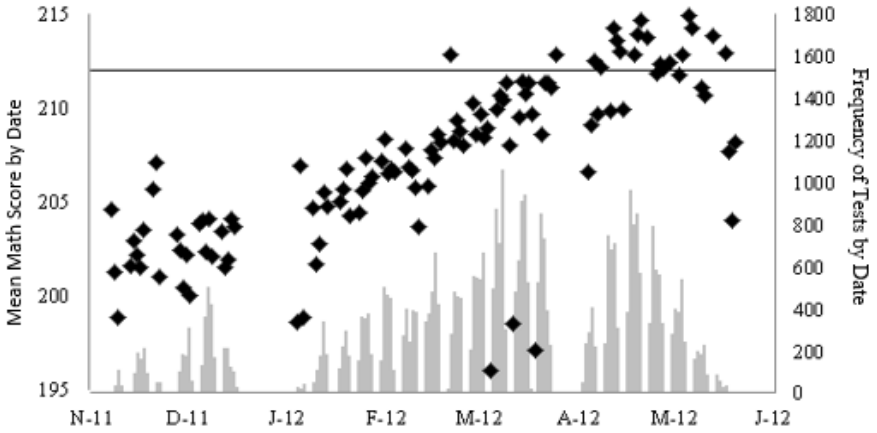
Note. There were no students in the lowest level (*Very Low*). Level Change indicates the number of students that changed achievement level (i.e., sum of the diagonal and off-diagonals).

Multiple Testing Opportunities

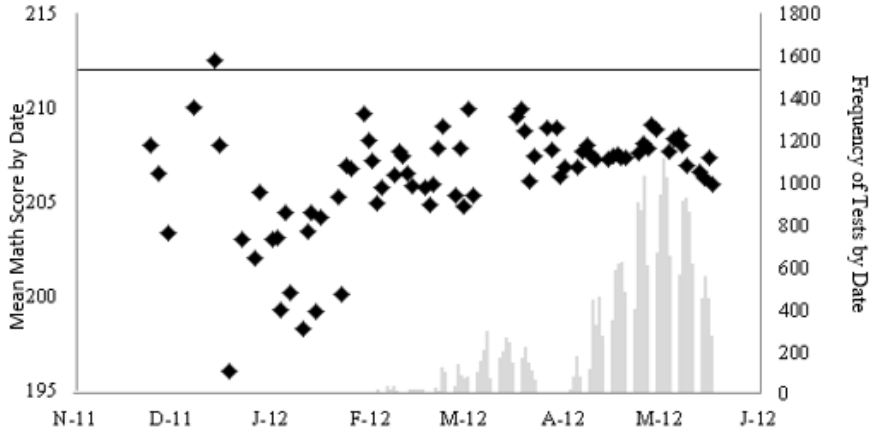


Multiple Testing Opportunities

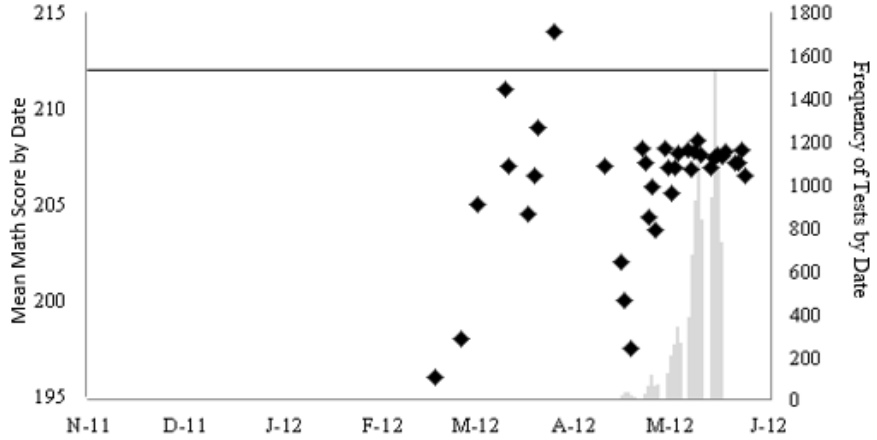
a) Opportunity 1



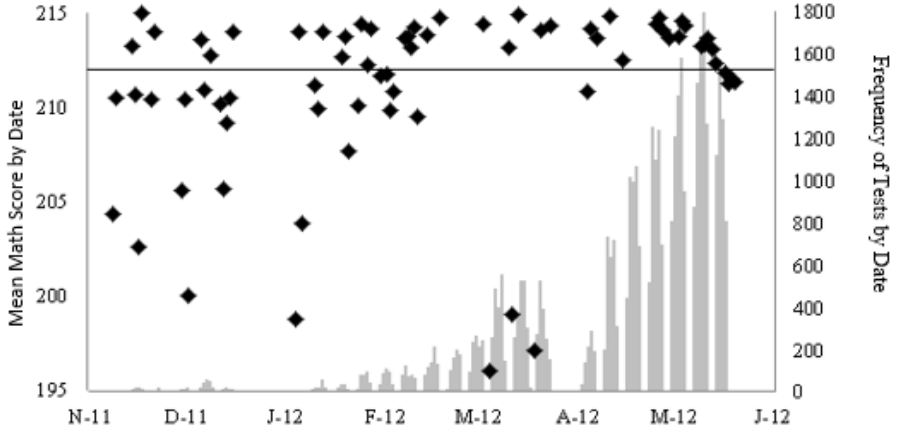
b) Opportunity 2



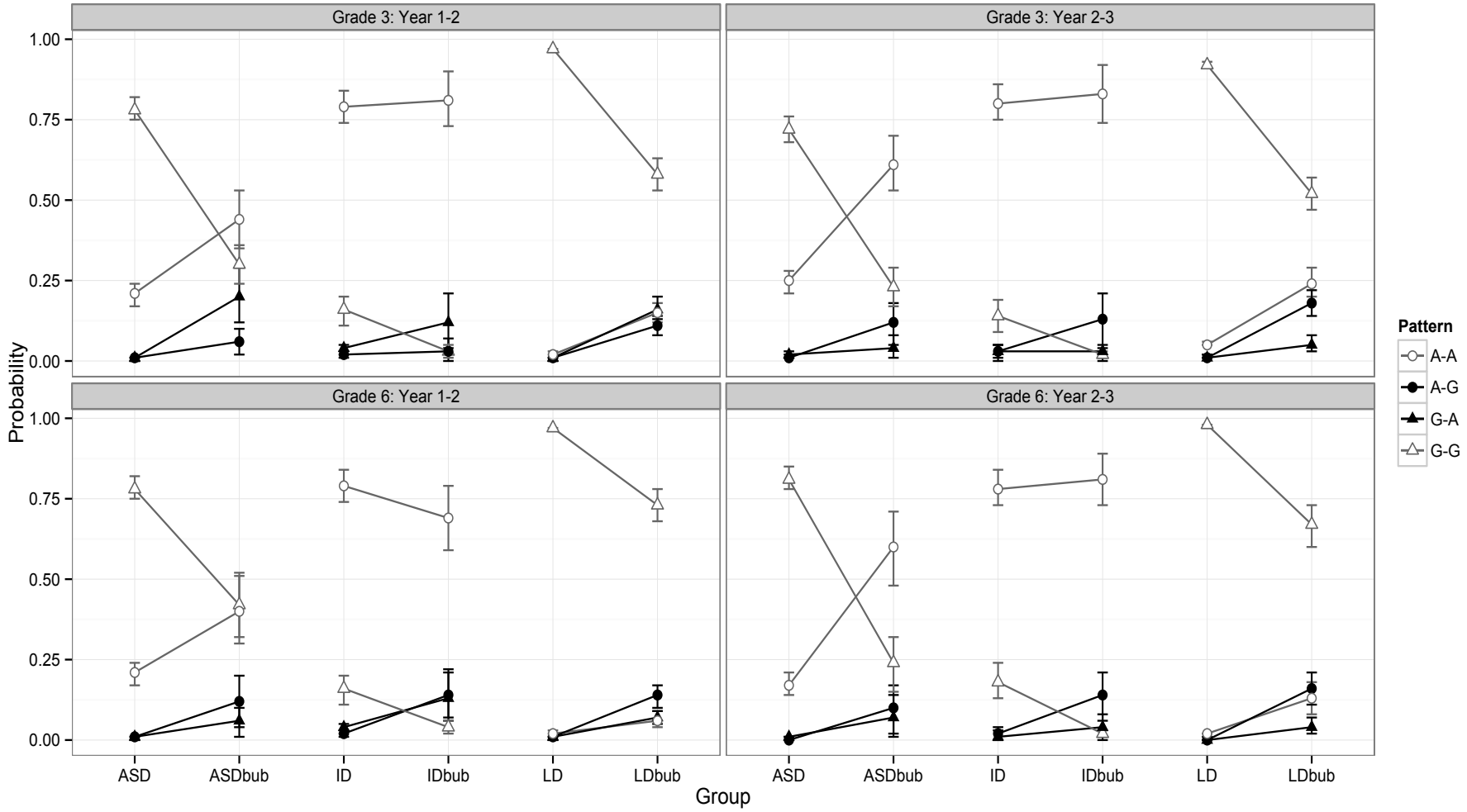
c) Opportunity 3



d) AYP



SWSCD Alternate-General Participation

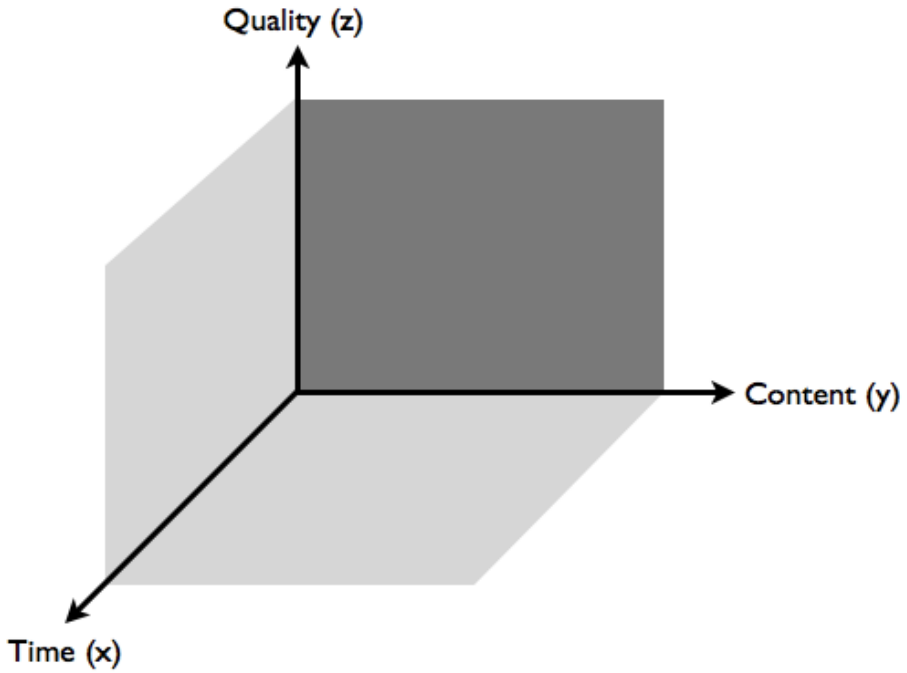


NCAASE Multiple Measures Study where OTL is featured as a Process Variable

Our Key Research Questions

- Do students with disabilities have equal access to the general curriculum in comparison to their classmates without disabilities?
- What is the relationship between opportunity to learn and academic growth in mathematics for all students? Is the relationship different for students with and without disabilities?
- To what extent are variations in growth for students with and without disabilities related to OTL?

Opportunity to Learn the Intended Curriculum



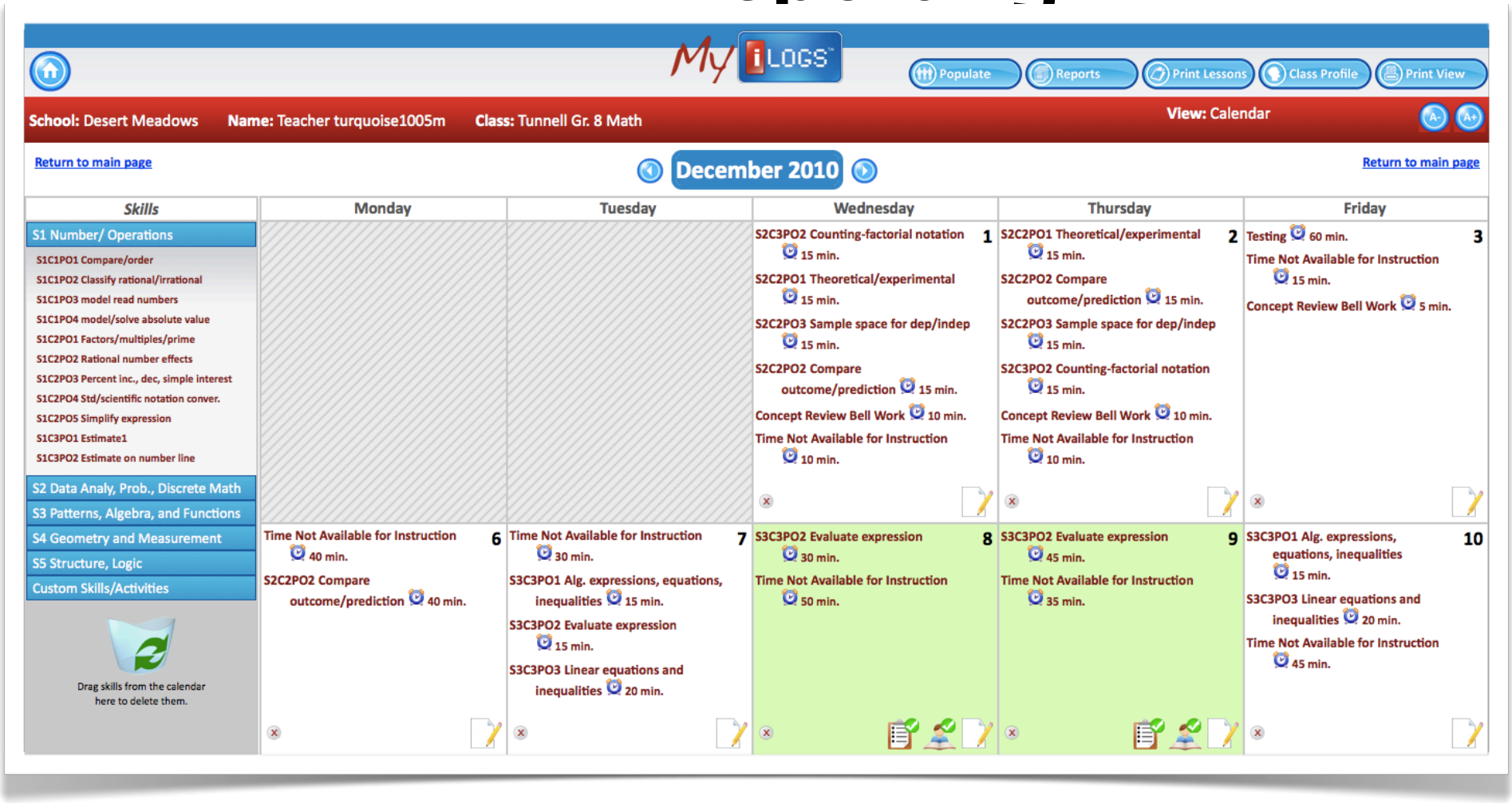
A unified conceptualization of OTL based on 50+ years of empirical research.

(Kurz, 2011)

<u>Definition: Opportunity to Learn</u>

The degree to which a teacher dedicates **instructional time** and **content coverage** to the intended curriculum objectives emphasizing higher-order **cognitive processes**, evidence-based **instructional practices**, and **alternative grouping formats.**

MyiLOGS: Calendar Reporting



Initial OTL Study using MyiLOGS

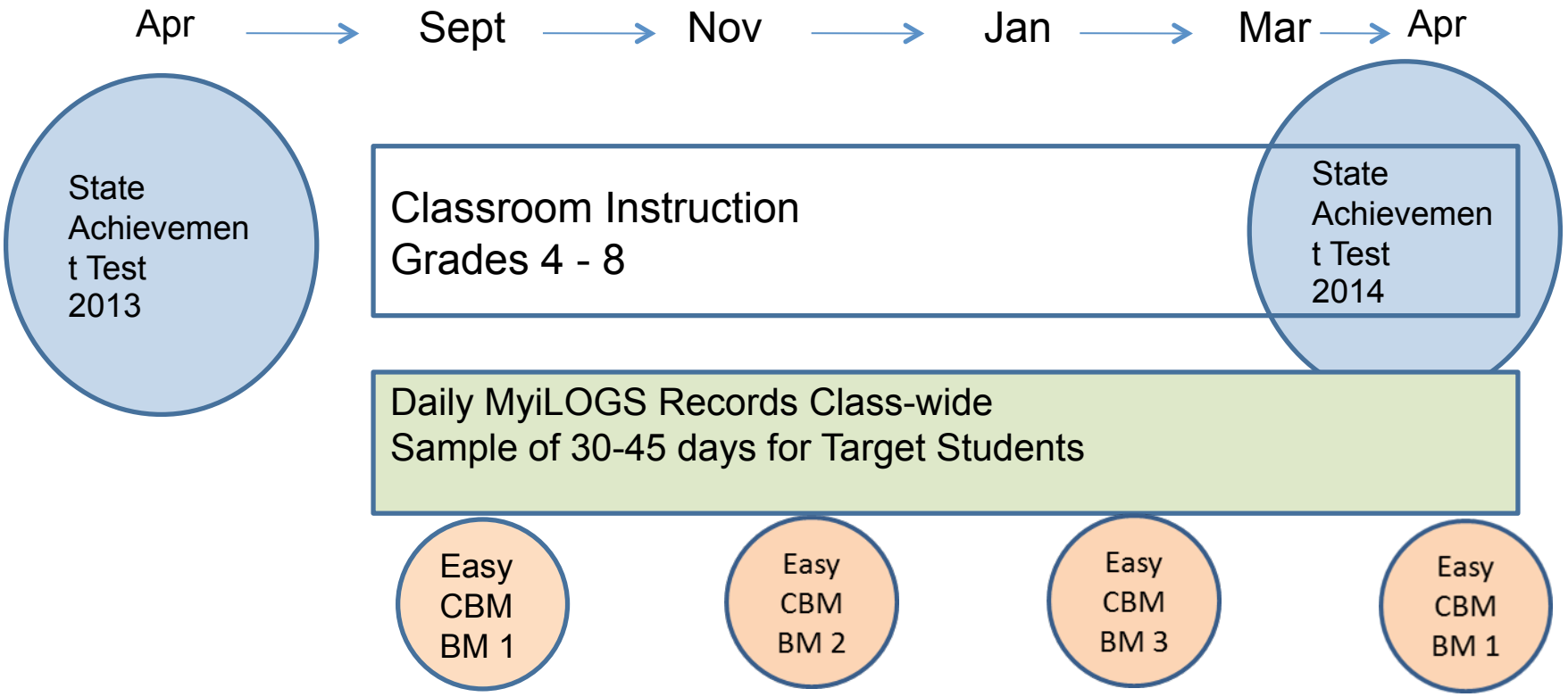
"Based on this sample's general education classrooms, which represented a full inclusion model, students with disabilities experienced less time on standards, more non-instructional time, and less content coverage compared to their class. … At least for students with disabilities nested in general education classrooms, OTL appears to be a differentiated opportunity structure. …the instructional differences do not indicate equal or equitable OTL for students with disabilities.

Given their disability-related characteristics, students with disabilities may need at least as much OTL, if not more, than their peers without disabilities. However, the Current findings suggest the exact opposite; if replicable, these data would pose serious instructional challenges for teachers and hold profound implications for policy makers focusing on academic proficiency and growth without consideration for the instructional inputs and processes that affect student outcomes."

(Kurz, Elliott, Lemons, Kettler, Zigmond, & Kloo, 2014)

Multiple Measures Study

Four 2-year Longitudinal Cohorts: 4-5, 5-6, 6-7, & 7-8



Multiple Measures Study: Year 1 Findings

- Teachers (N = 69) and students (N = 261; 136 SWD + 125 SWoD) from AZ & OR schools grades 4^{th}-8^{th} .
- A regression analysis showed OTL, easyCBM, grade, and special education status predicted nearly 67% of the variance in students' end of year mathematics achievement as measured by the OR Assessment of Knowledge & Skills in Math. By comparison, this same set of measures accounted for 61% of the variance in students' end of year mathematics achievement on the AZ Instructional Measurement of Skills test.
- Inspection of the regression results showed
  - CBM measures are the best single predictor of end-of-year achievement (46% of the variance)
  - OTL indices of time, content, cognitive processes, and instructional practices contributed an additional 10% to the prediction of end of year achievement for students in mathematics.
- More information to come from this study as we finish Year 2; we will have achievement growth data for all these students!

Thank You & Stay in Touch

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