Some Issues and Findings From NCAASE

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NCAASE National Center on Assessment and Accountability for Special Education

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

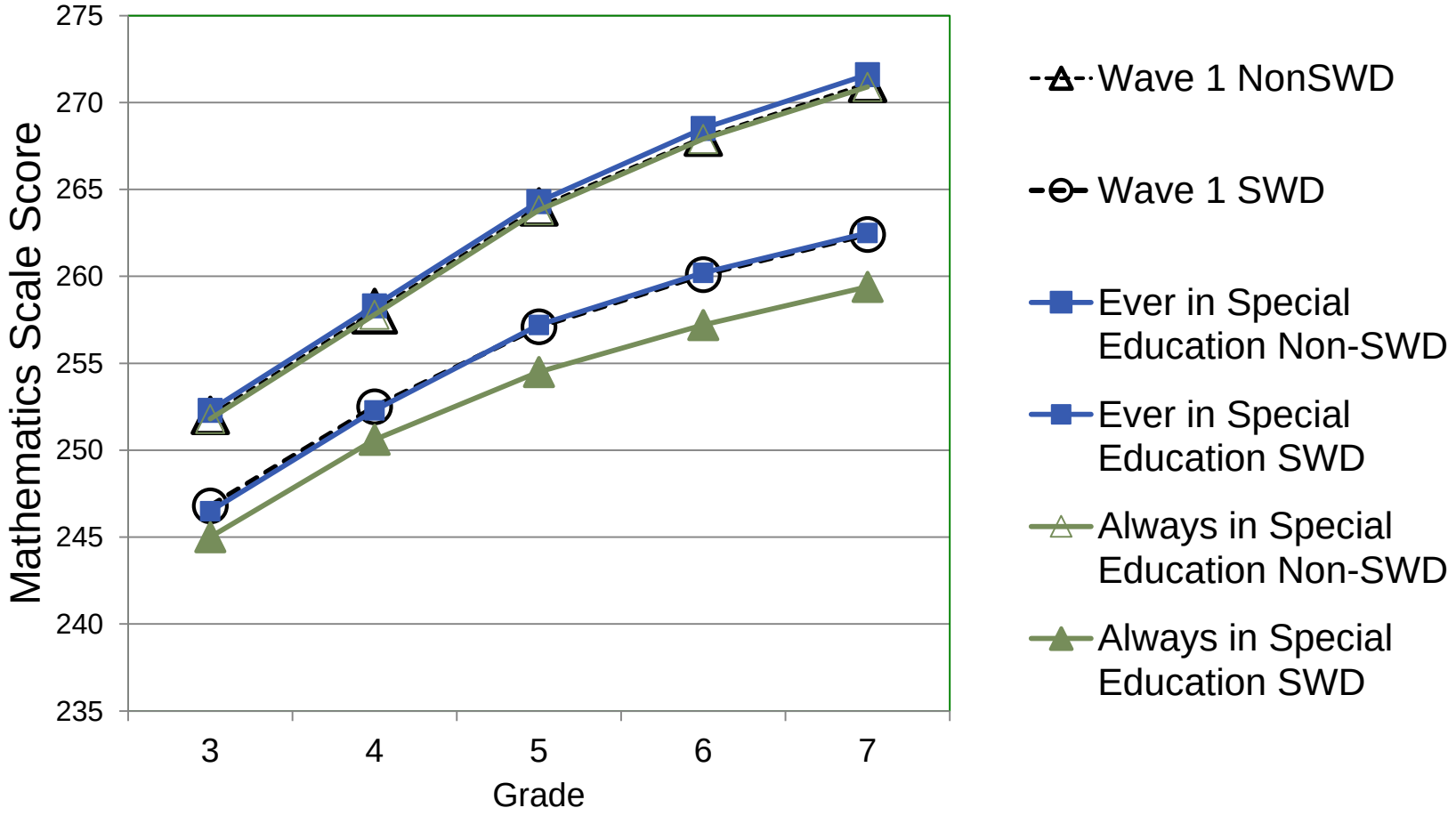
Students with Disabilities (SWD): **Who and When?**

- When do researchers and policy analysts identify SWD classification? Wave 1
- Students exit and enter special education and may change participation in the general and alternate assessments over time.
- How do these changes relate to student achievement status and reported student outcomes?

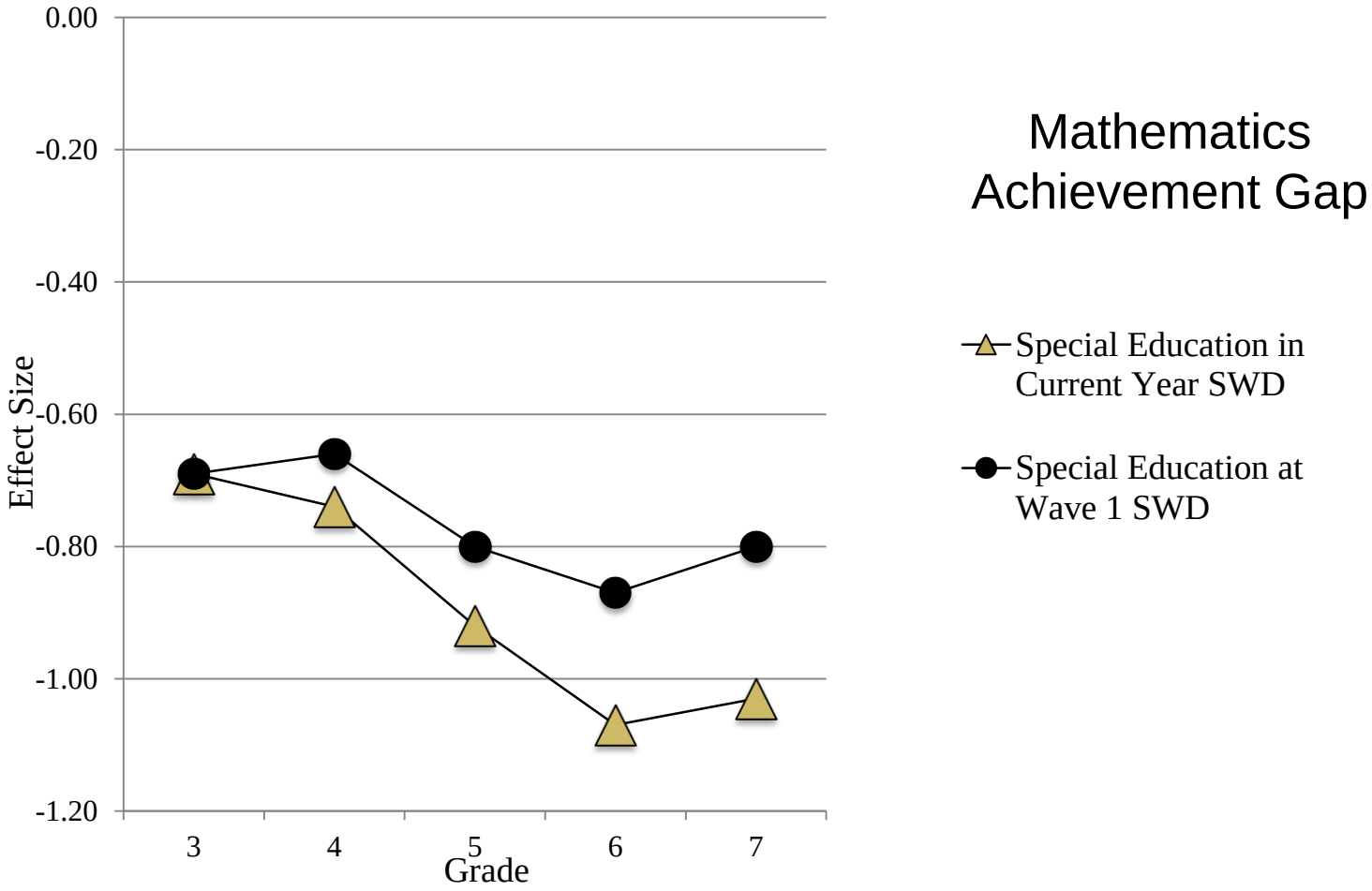
Special Education Membership Grades 3-7

SWD Subgroup Identification Method	Percent
Current Year	11.1 to 12.4
Wave 1	11.8
Ever in Special Education	16.1
Always in Special Education	6.0

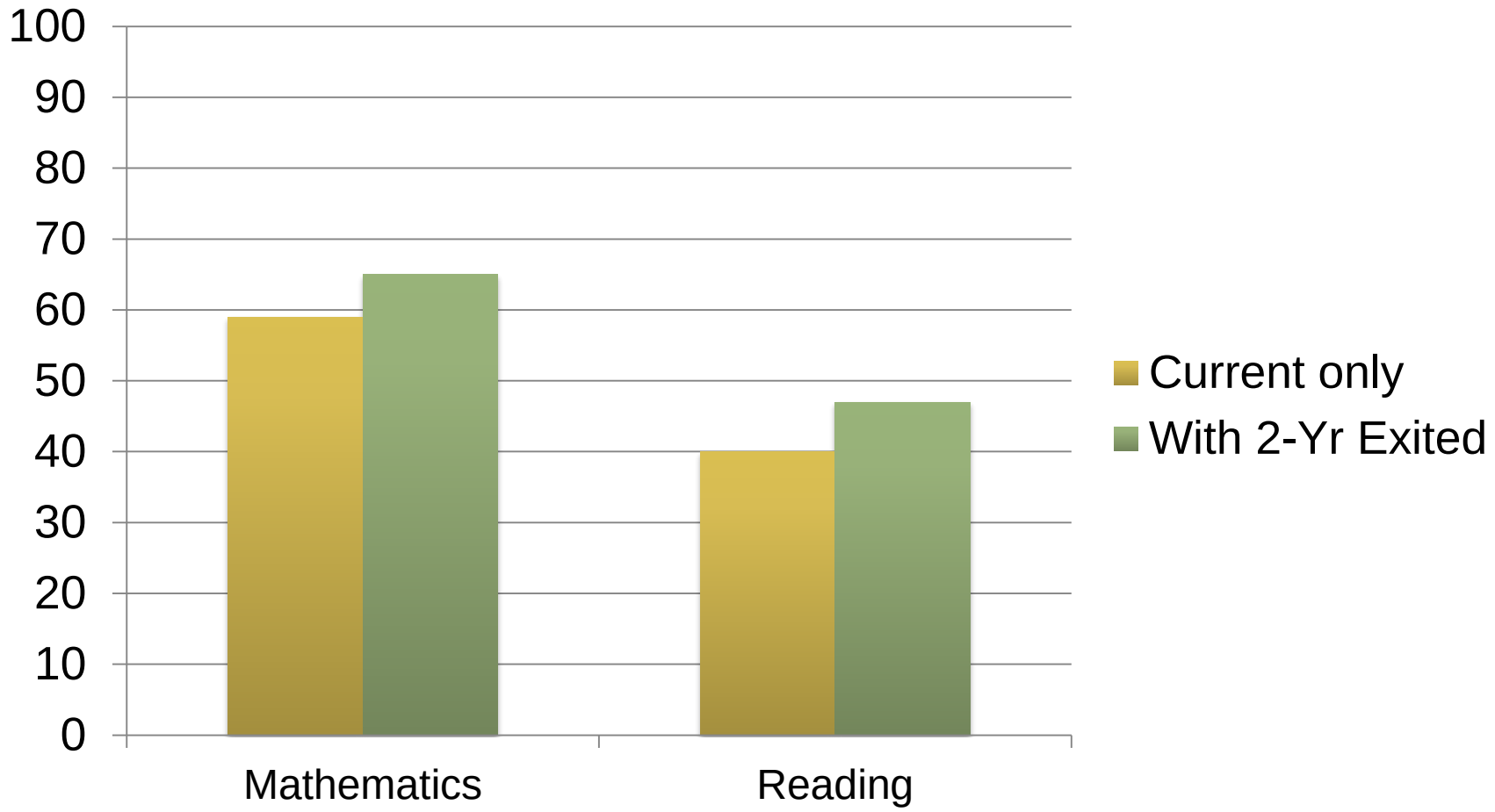
Observed Means by SWD Identification Method



Stable Subgroup Membership Matters



Change in School-level Percent Proficient for SWD w/ Exiters Included



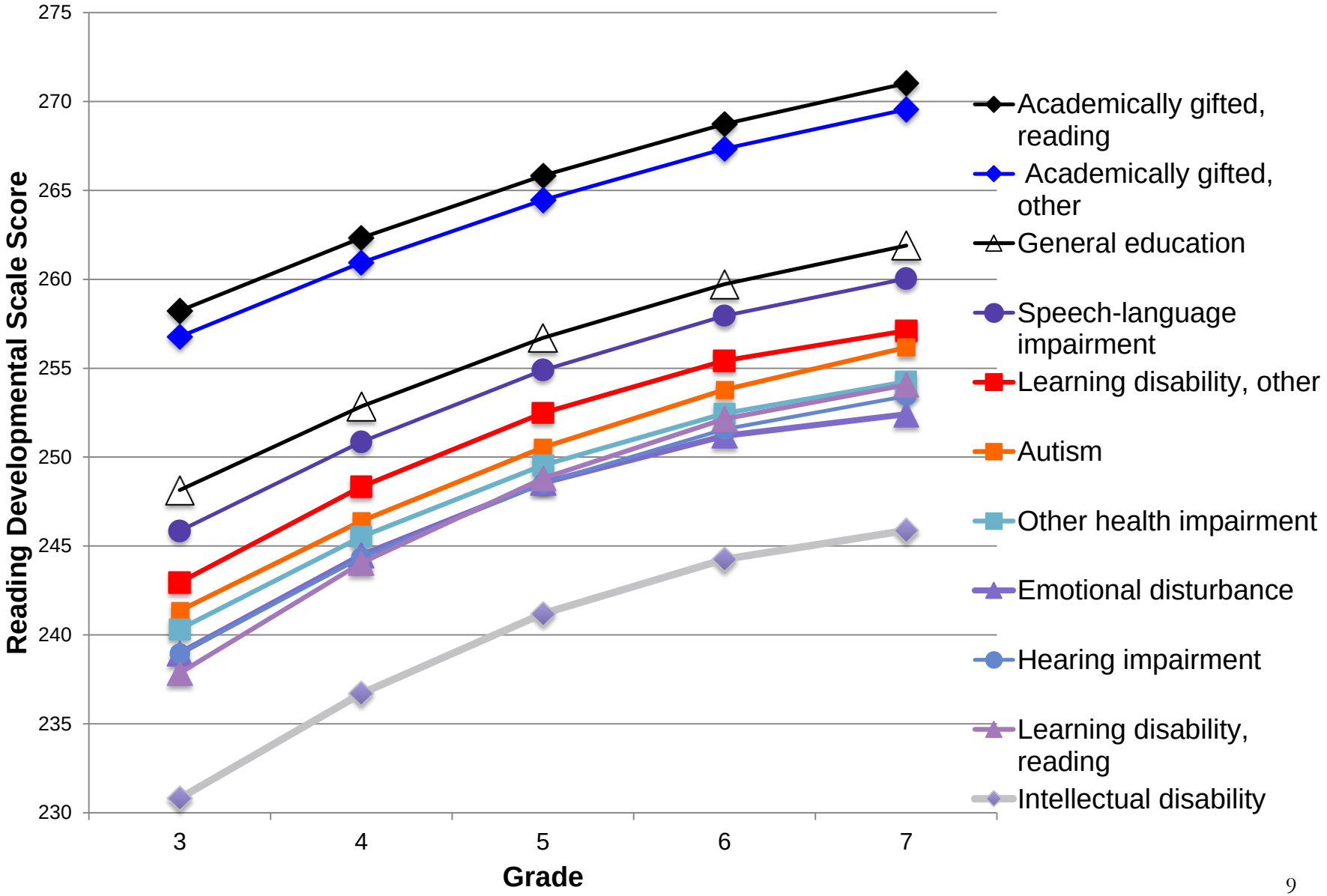
Some Conclusions About SWD Classification

- Many researchers and policy makers ignore the complexity of student transitions in and out of SWD status
- Common methods of reporting SWD outcomes may bias reports and disadvantage schools that "graduate" their SWD
- Outcomes look different depending on the SWD identification method

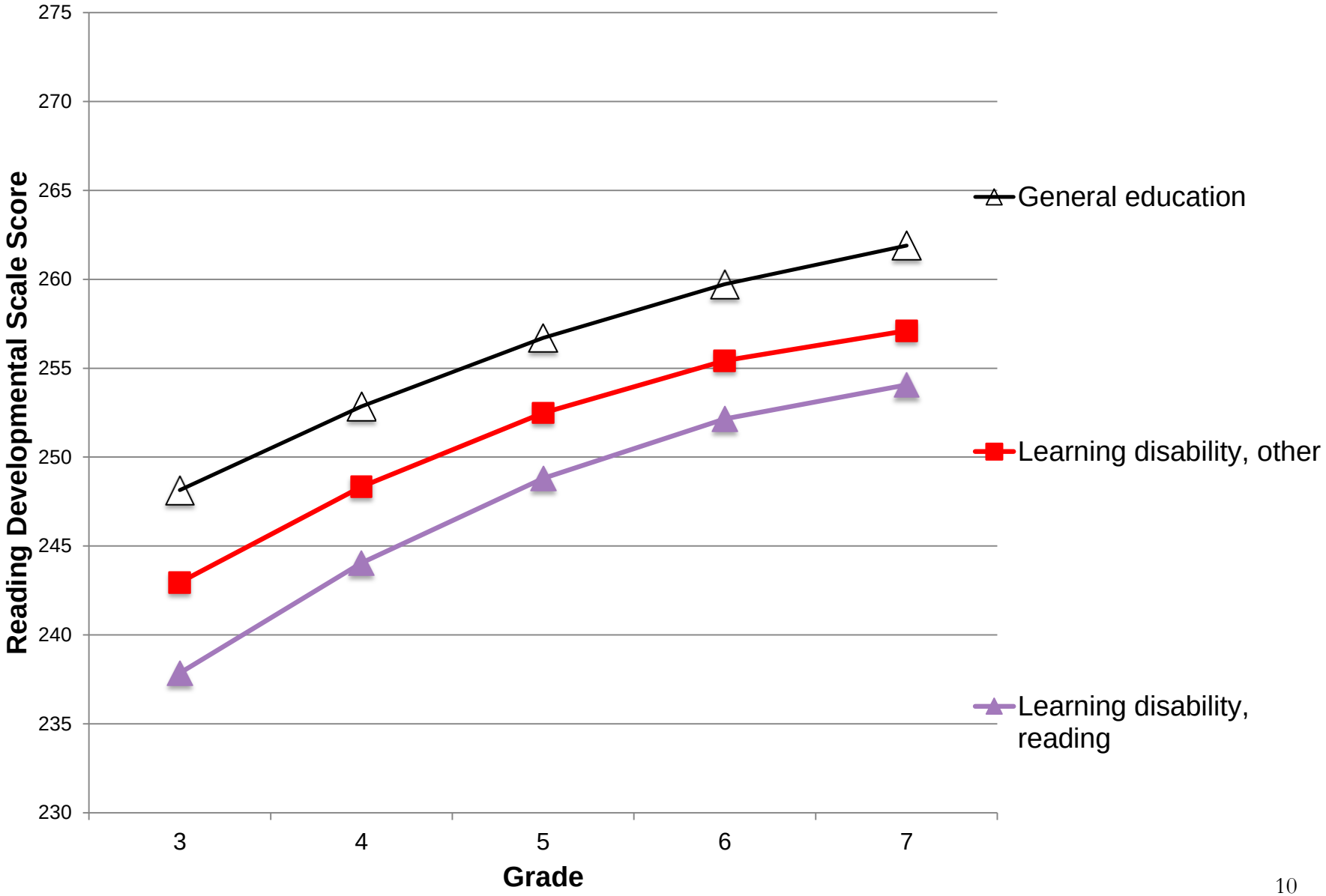
Investigating Achievement Growth for SWD

- What does it look like?
- Is it the same or different for SWD vs. SWoD? For different exceptionality groups?

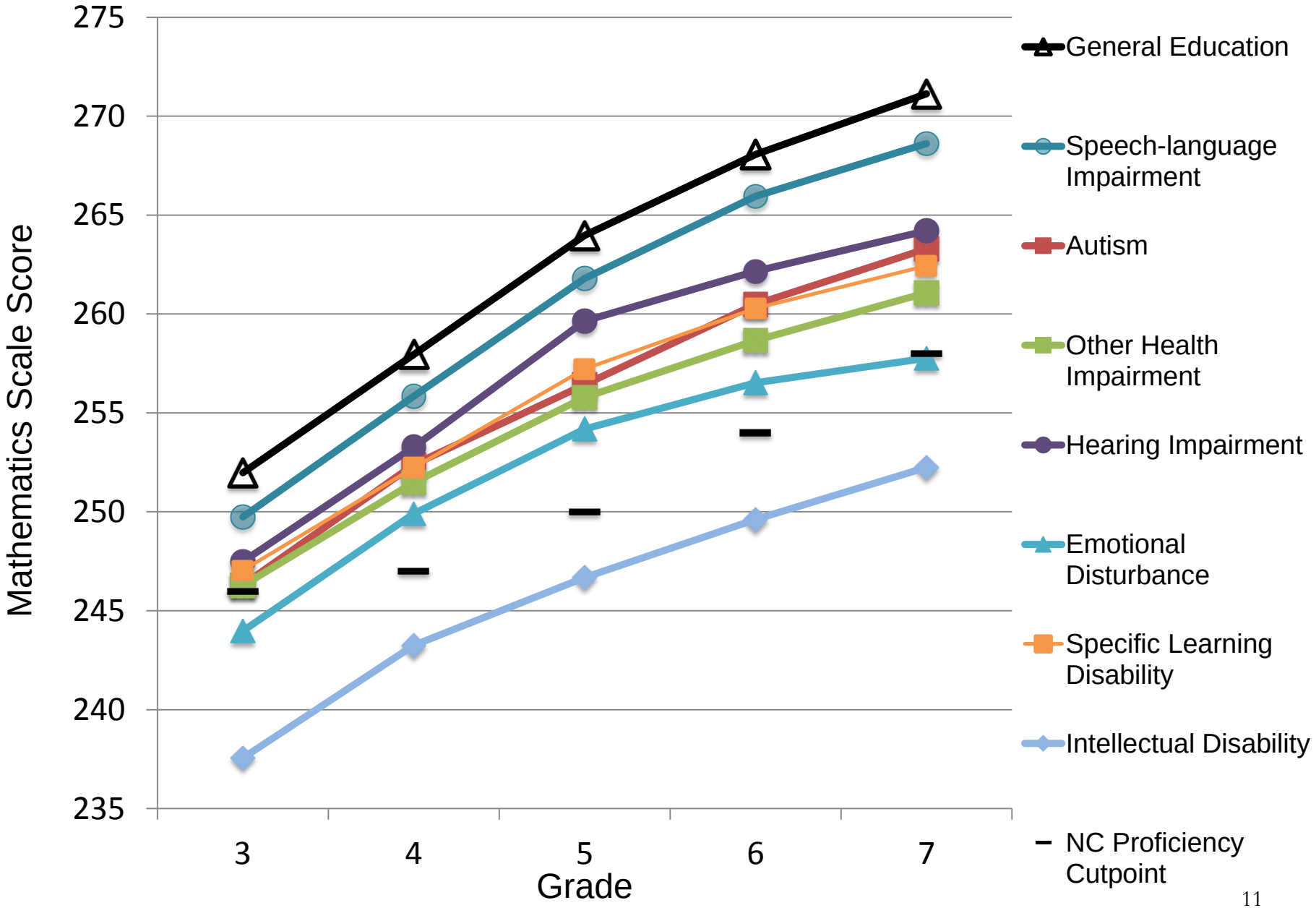
Reading Comprehension Growth by Exceptionality



Learning Disability in Reading vs. LD in Other Area



Mathematics Growth by Exceptionality



Some Conclusions About Academic Growth of SWD

- SWD participating in the general assessment show growth that is similar to students without disabilities.
- Many SWD students are keeping pace, but parallel growth means discrepancies between SWD and non-SWD do not decrease across grades.
- Most exceptionalities show similar growth rates.
- Students with learning disabilities in reading show accelerated growth rates that result in some closing of the reading achievement gap.

How Large is the SWD-SWoD Achievement Gap? Is it Increasing or Decreasing?

- Previous research on achievement gaps has limitations:
  - Often gaps are not evaluated empirically; visual inspection rather than statistical testing; no common, empirical metric (effect size) to describe differences
  - Interactions not tested, so gaps for some subgroups likely underestimated
- Gaps may be different at different points in the score distribution

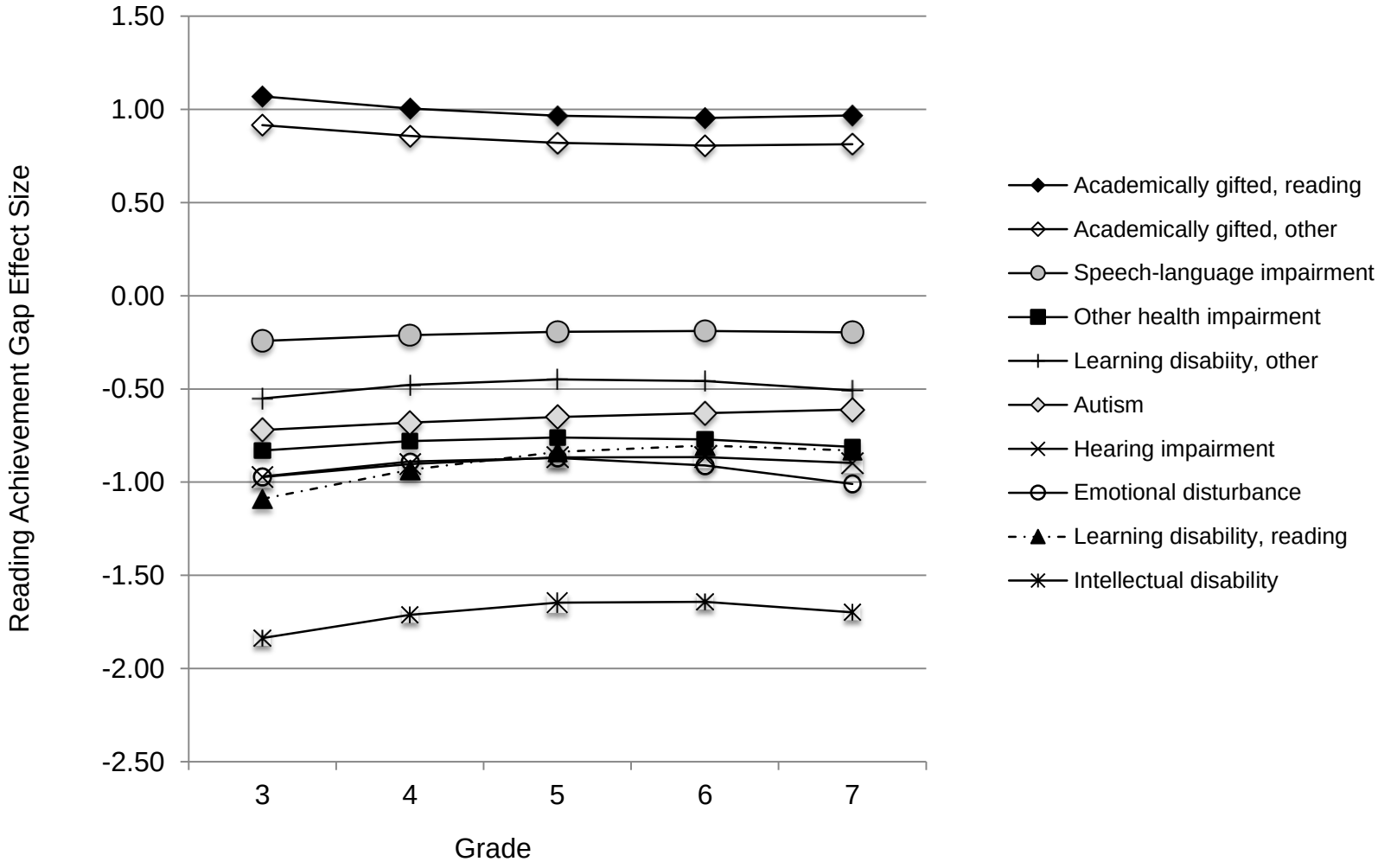


Figure. Reading achievement gap effect sizes based on differences in empirical Bayes estimated means across grades for students in different exceptionality categories compared to students in general education (from Schulte et al., 2016).

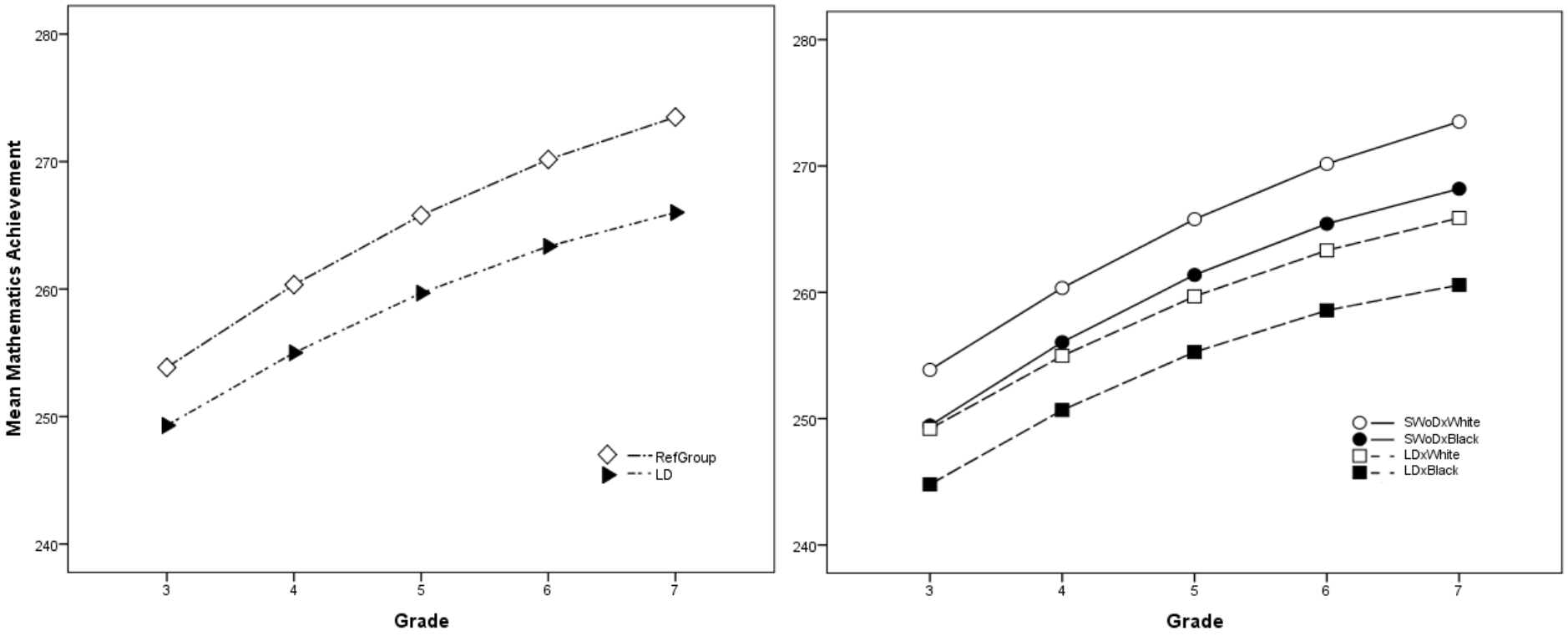
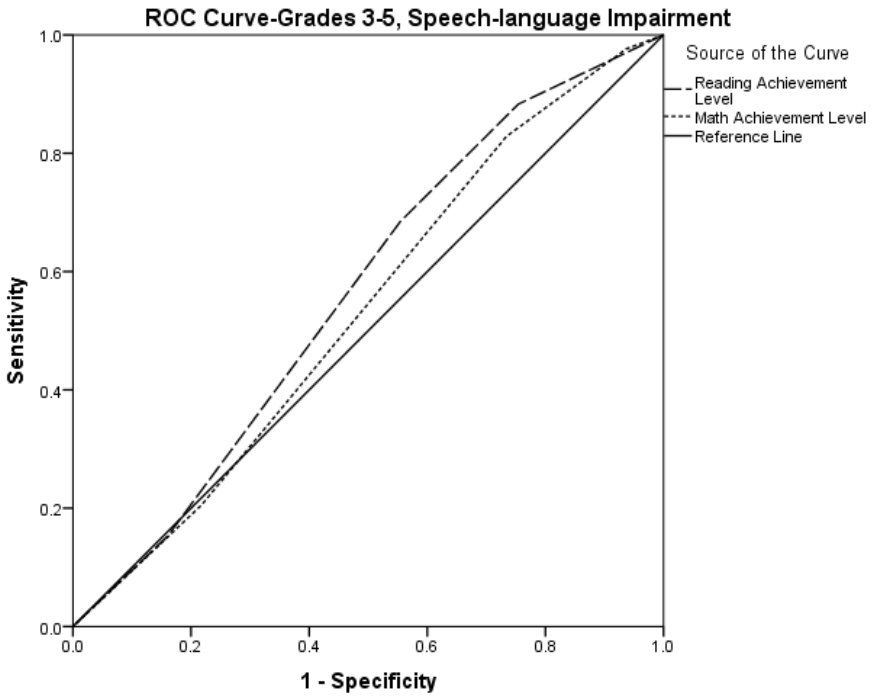
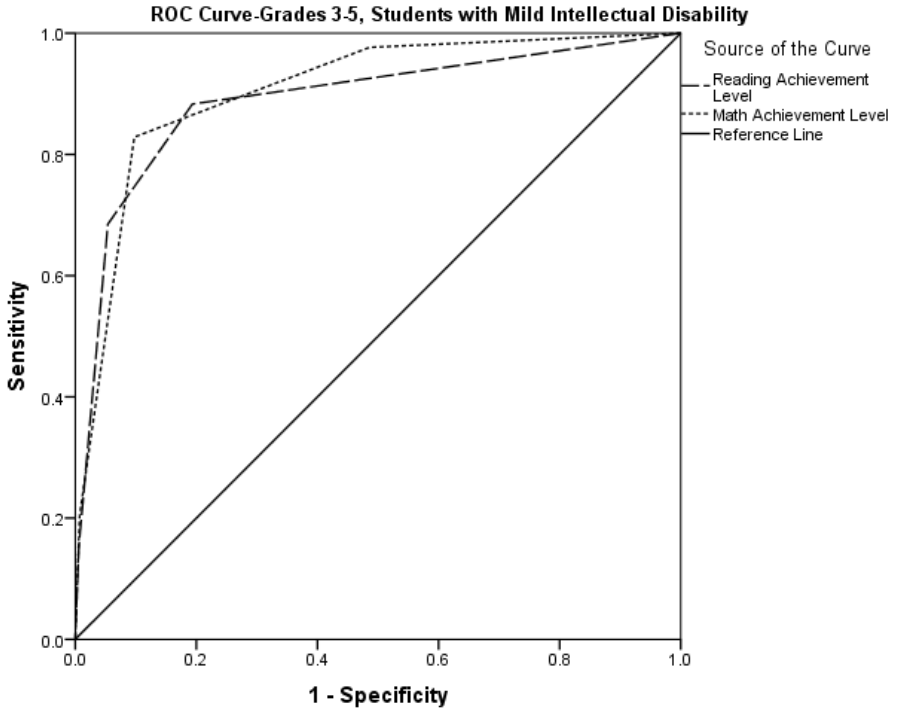


Figure. Partial regression of LD compared to the reference group on left; three way interaction effect of LD x Black race/ethnicity x grade interaction on right.

Achievement Gap Across the Whole Score Distribution: Speech-language Impairment (on left), Mild Intellectual Disability (on right) on NC Math and Reading Grades 3-5





Some Conclusions About SWD Achievement Gaps

- To date our studies show relatively stable achievement gaps over grades in both math and reading; gaps small for some groups (e.g., SLI), but very large for others (e.g., ID)

- Students with LD in reading close the gap somewhat on the NC reading comprehension test

- The size of exceptionality gaps also depends on other student characteristics and background (e.g., LD and FRL, LD and Black)

Some Conclusions About SWD Achievement Gaps

- Much greater caution should be used in setting growth or achievement expectations for SWD

- Growth-to-standard or other goals for improvement need to be based on empirical evidence about student growth and what is realistically feasible

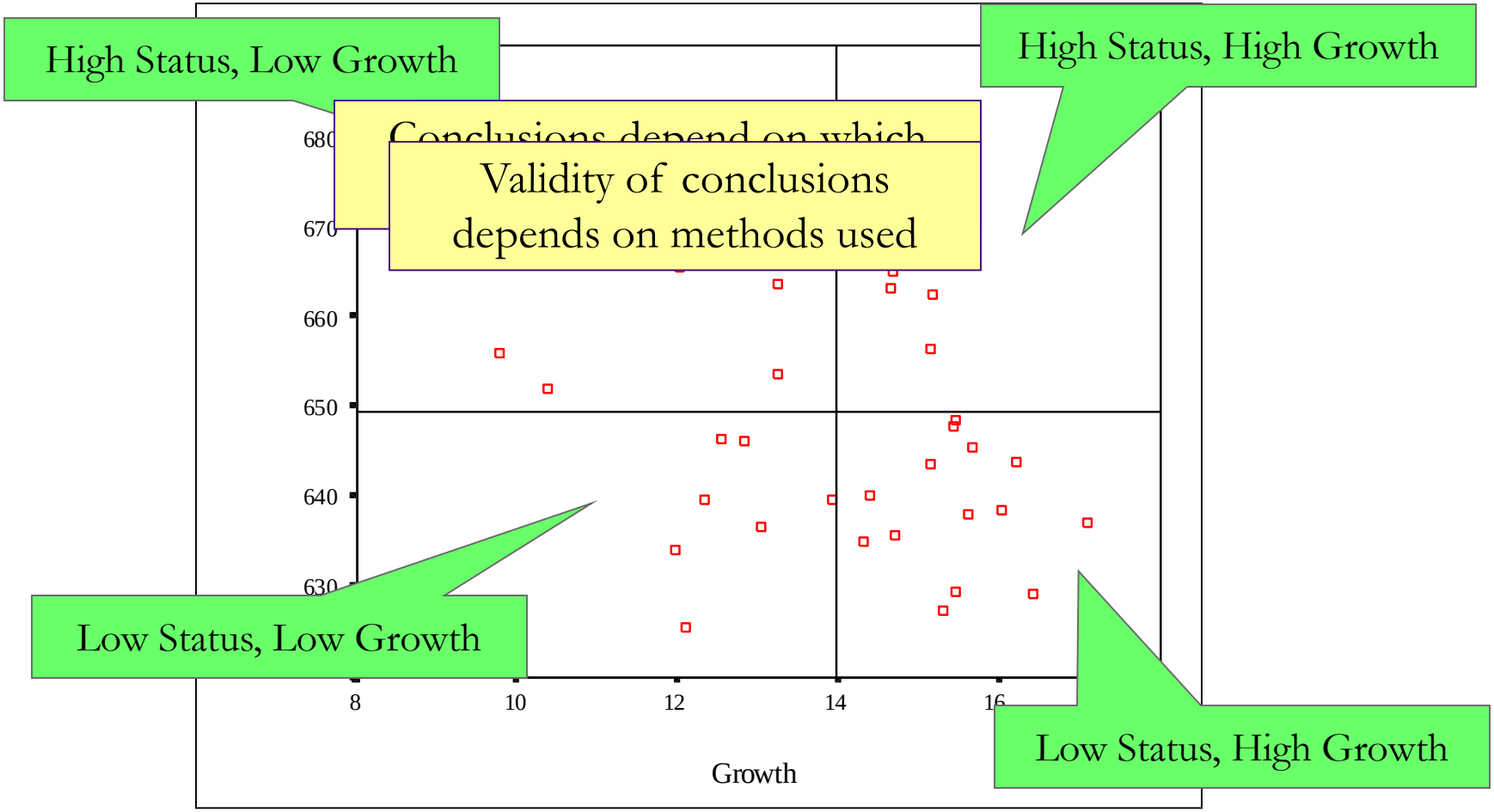
How Do Different School Effect Models Compare? Do Different Models Treat Schools Who Serve SWD Differently?

- Few studies on school effects have examined SWD
- We are comparing several different models of estimating school performance using OR, AZ, NC, and PA state data
- Models include:
  - Status; gain and residual scores
  - Transition matrix models
  - Value-added models
  - Student Growth Percentiles (SGP)
  - Hierarchical linear growth models (HLM)

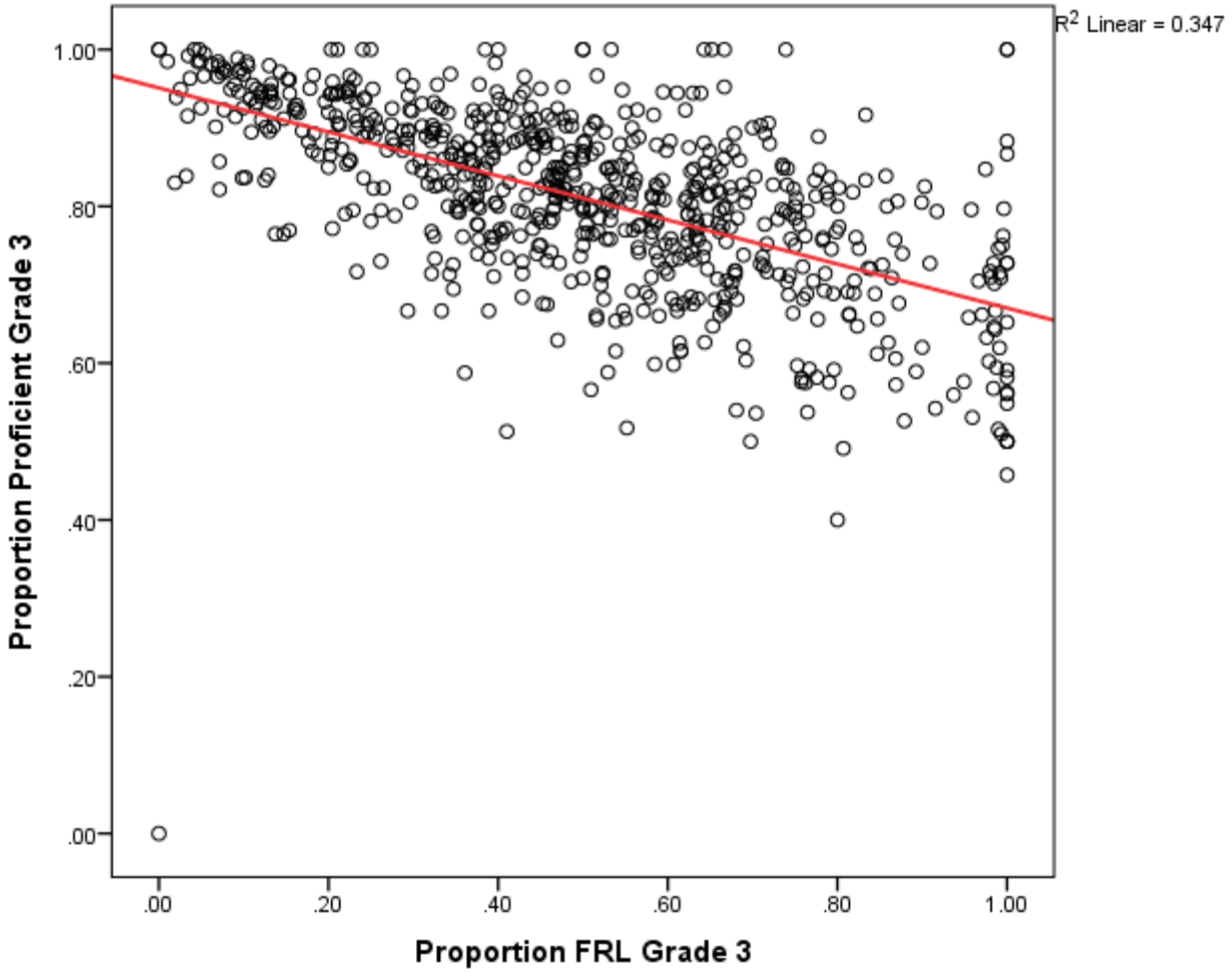
Some Preliminary Results

- Choice of model matters; results differ from one model to another; school rank can change substantially depending on model chosen
- "Hopes" for many models not likely to be realized (e.g., using VAM to evaluate teacher performance [see AERA position statement], using SGP to estimate "growth")
- Model estimates may be correlated with school intake
- Choice of model can disadvantage schools that serve SWD

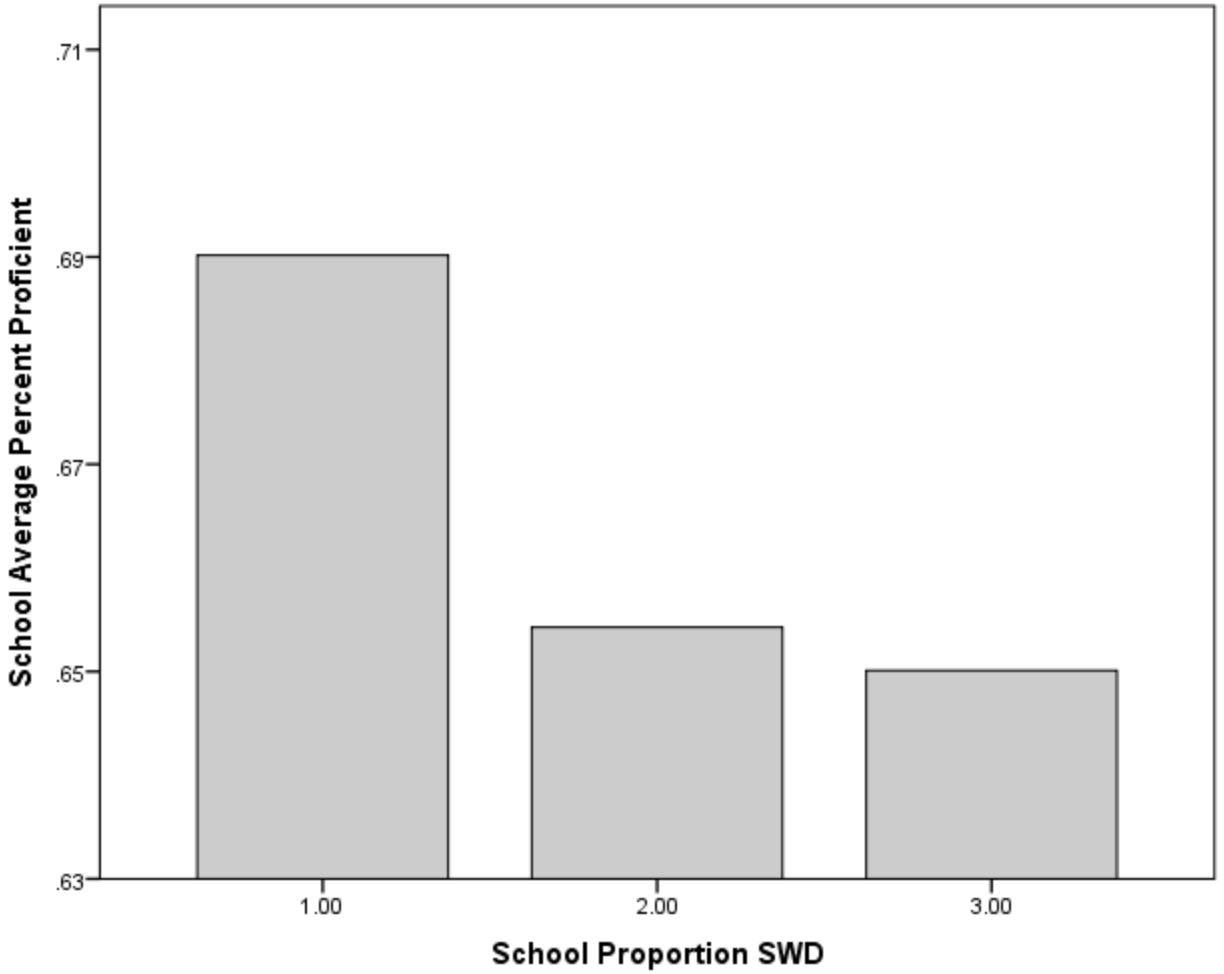
Inferences about School Performance



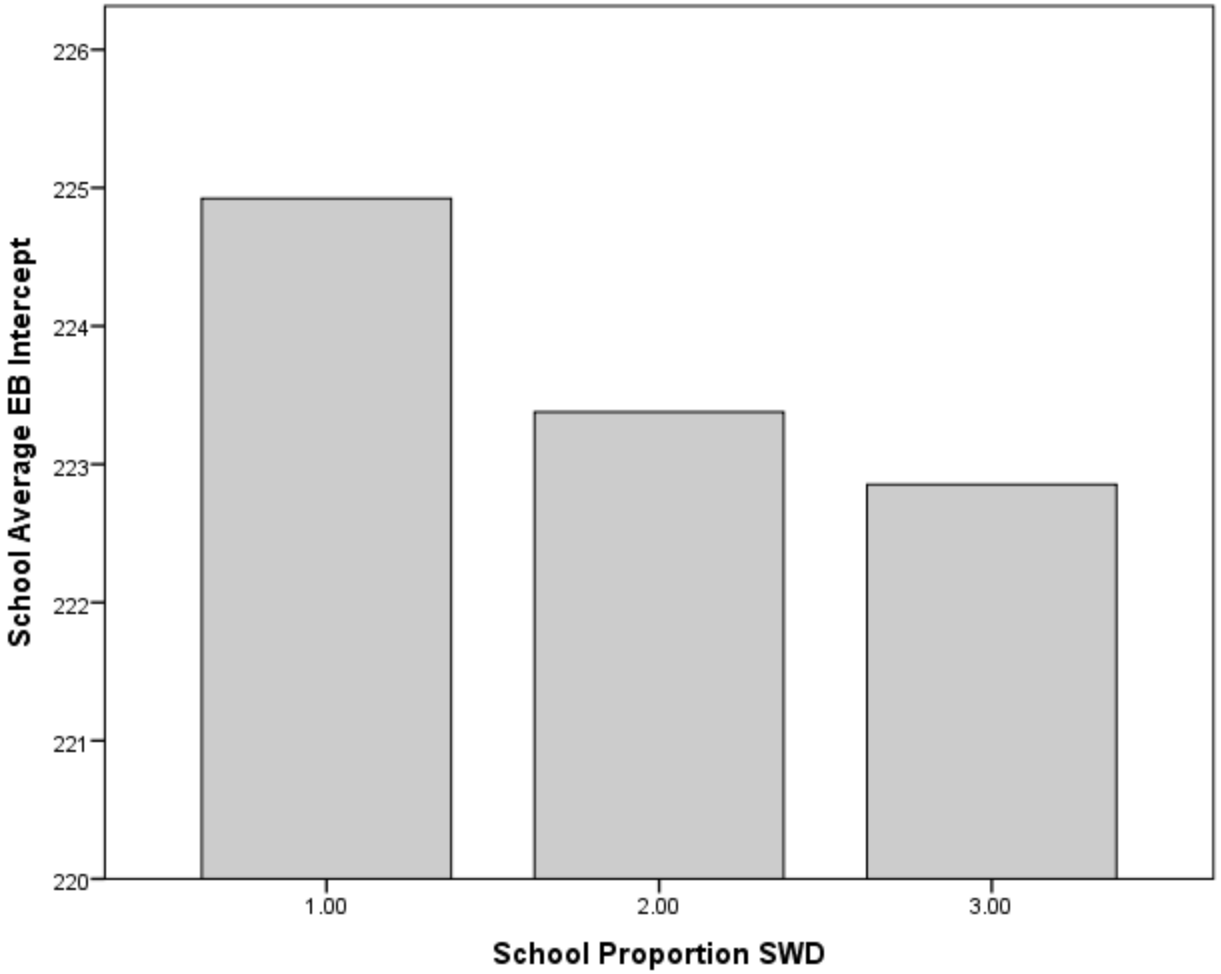
School Intake: Proportion Free-reduced Lunch



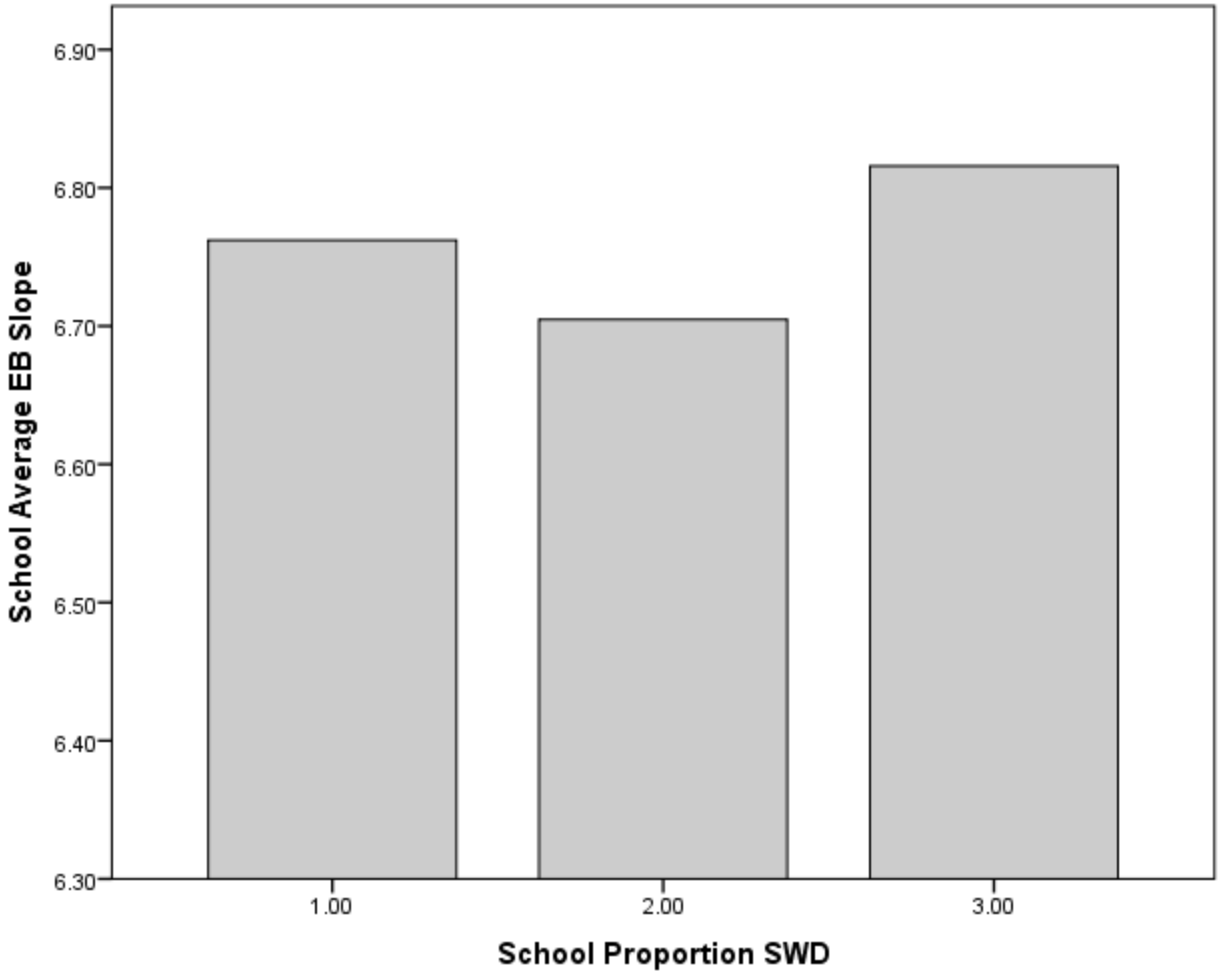
Relation of School Percent Proficient with School Proportion SWD (p = .018)



Relation of HLM EB Intercept with School Proportion SWD ($p < .001$)



Relation of HLM EB Slope with School Proportion SWD (ns, p = .796)



Some Conclusions About Estimation of School Effects

- Choice of model matters
- Some model estimates may not be stable across student cohorts
- Some models show higher relations with school intake characteristics
- Schools who serve SWD are ranked higher on models that "condition" on school characteristics or use prior achievement as a control

What Patterns Describe the Participation of SWD on General vs. Alternate Assessments?

What does SWD growth look like?

What Patterns of Transition Occur Across Proficiency Categories?

Movement into and out of Alternate and General Assessment Programs

Table 1. Grade 3 (*n* = 3,048) and Grade 6 (*n* = 3,911) Cohort Test Patterns 2009–2010 Through 2011–2012.

Testing pattern	Grade 3 cohort (%)	Grade 6 cohort (%)
AA to AA to AA	446 (14.63)	341 (8.69)
AA to AA to GA	72 (2.36)	39 (1.00)
AA to GA to AA	7 (0.23)	6 (0.15)
AA to GA to GA	0	0
GA to GA to GA	2,226 (73.03)	3,221 (82.36)
GA to GA to AA	52 (1.71)	20 (0.51)
GA to AA to GA	36 (1.18)	19 (0.49)
GA to AA to AA	92 (3.02)	37 (0.95)
Missing a time point	187 (6.14)	282 (7.21)

Transition in Proficiency for Students with Significant Cognitive Disabilities – Gr 3 to 4

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

		Grade 4				
		Low	Nearly Meets	Meets	Exceeds	Off Diagonal 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)
	Off Diagonal 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).

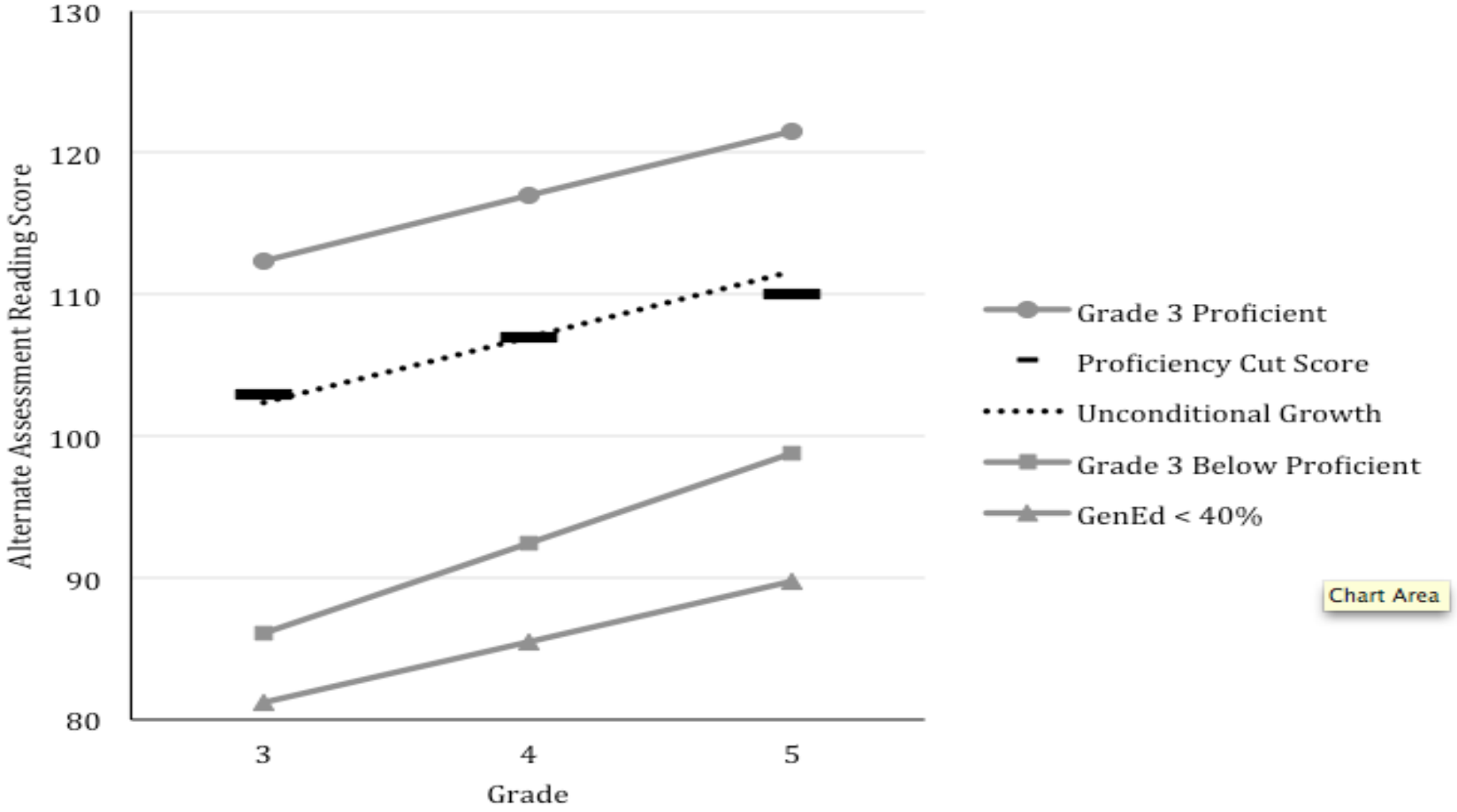
Transition in Proficiency for Students with Significant Cognitive Disabilities – Gr 4 to 5

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

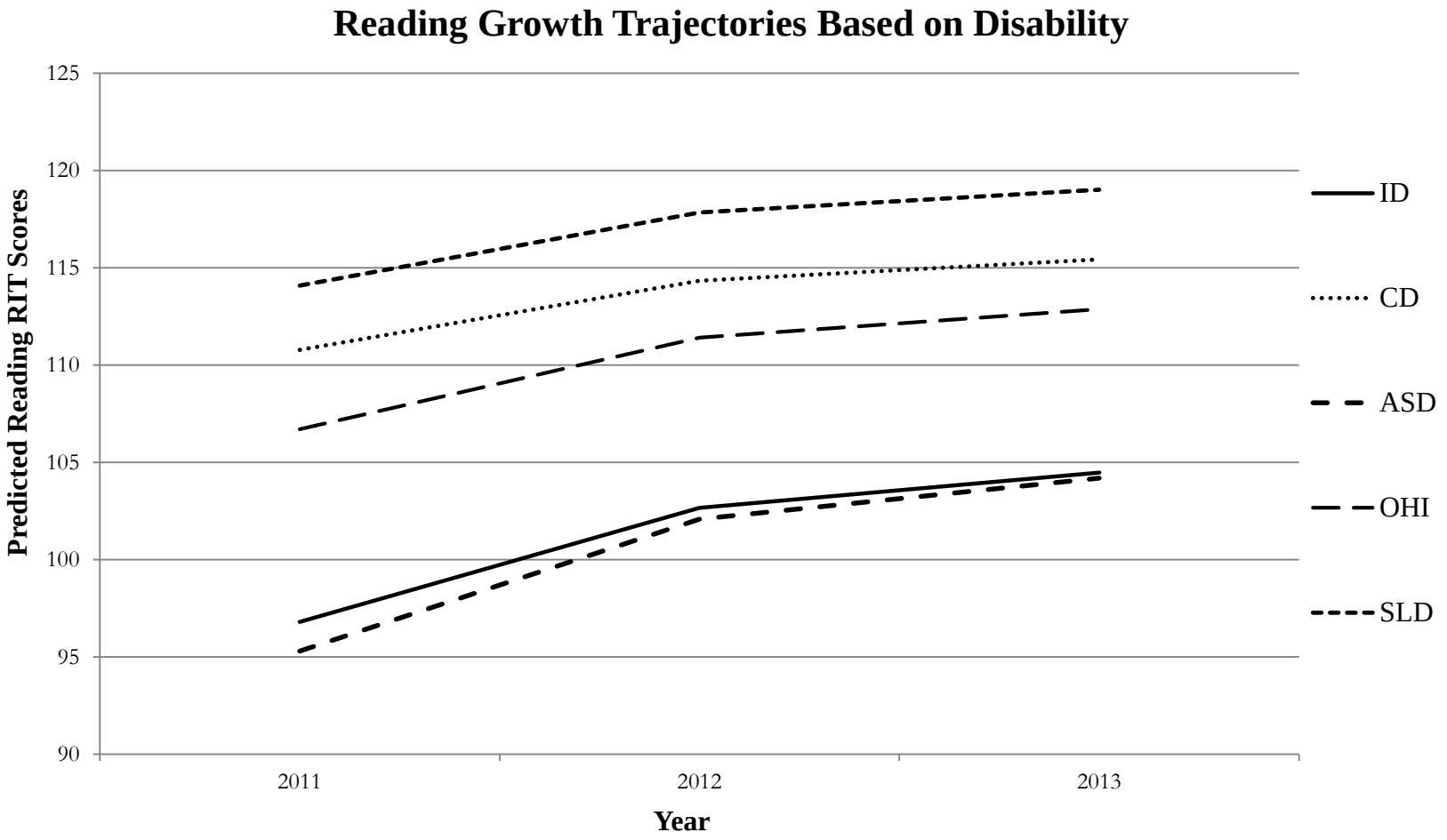
		Grade 5				
		Low	Nearly Meets	Meets	Exceeds	Off Diagonal Level Change
Grade 4	Low	163	13	3	0	
	Nearly Meets	42	48	29	4	0 (+3 levels)
	Meets	15	28	99	49	7 (+2 levels)
	Exceeds	3	2	41	95	91 (+1 level)
	Off Diagonal Level Change		3 (-3 levels)	17 (-2 levels)	111 (-1 level)	405 (no change)

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).

Changes in Performance on the Alternate Assessments



Modeling Reading Growth in Grades 3-5 with the Oregon Alternate Assessment



Some Conclusions About Alternate Assessment Participation and Growth

- The majority of students stay within the same state testing program (general or alternate) over grades
- There is only modest transition of SWD students across alternate assessment proficiency categories
- On the Oregon AA, reading growth differs significantly by exceptionality group and is curvilinear over time

Mathematics Achievement Gaps: The Influence of Opportunity to Learn and Special Education Status

1. Do students with and without disabilities who received instruction in the same general education classrooms have an equal opportunity to learn mathematics?

2. What is the relationship among five instructional variables (characterized as OTL) and within year academic growth on an interim assessments?

3. What is the predictive relationship among five instructional OTL variables and students' end-of-year mathematics achievement?

Year 2 Findings Summary

- Very **similar mathematics instructional processes** found for students with and without disabilities in the same elementary or secondary classrooms in AZ and OR schools.
  - Yet, there were **significant achievement gaps between these groups of students** on the four interim CBM assessments and the end-of-year achievement state test.

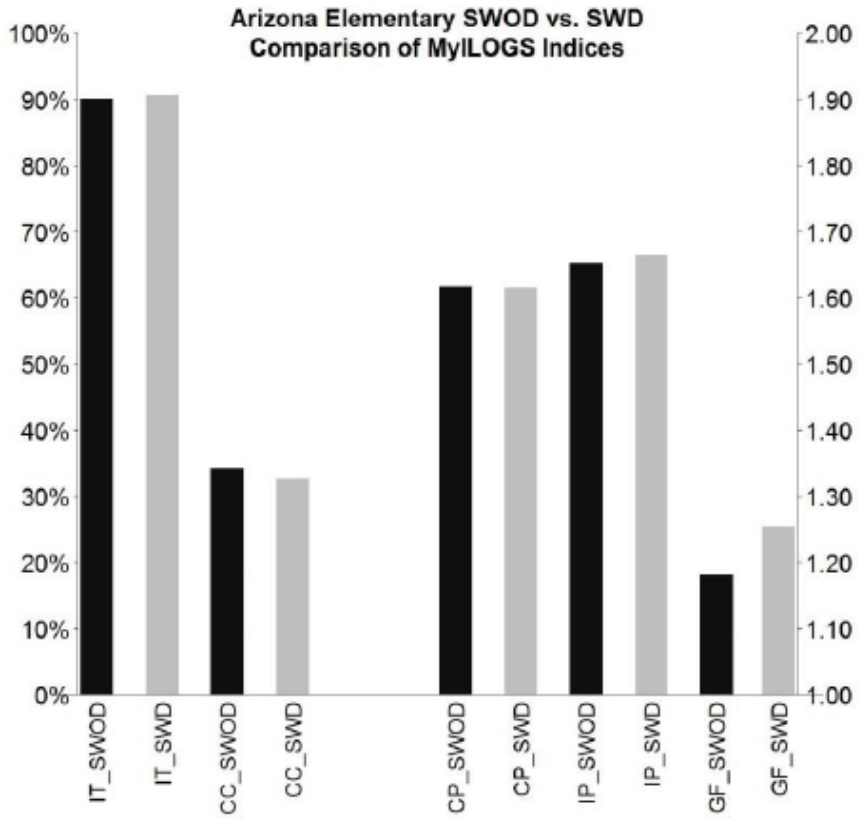
- What accounted for variance in students' end-of-year mathematics achievement score?
  - Grade, 10%
  - Special Education Status, about 28%
  - OTL measures, about 2.2%

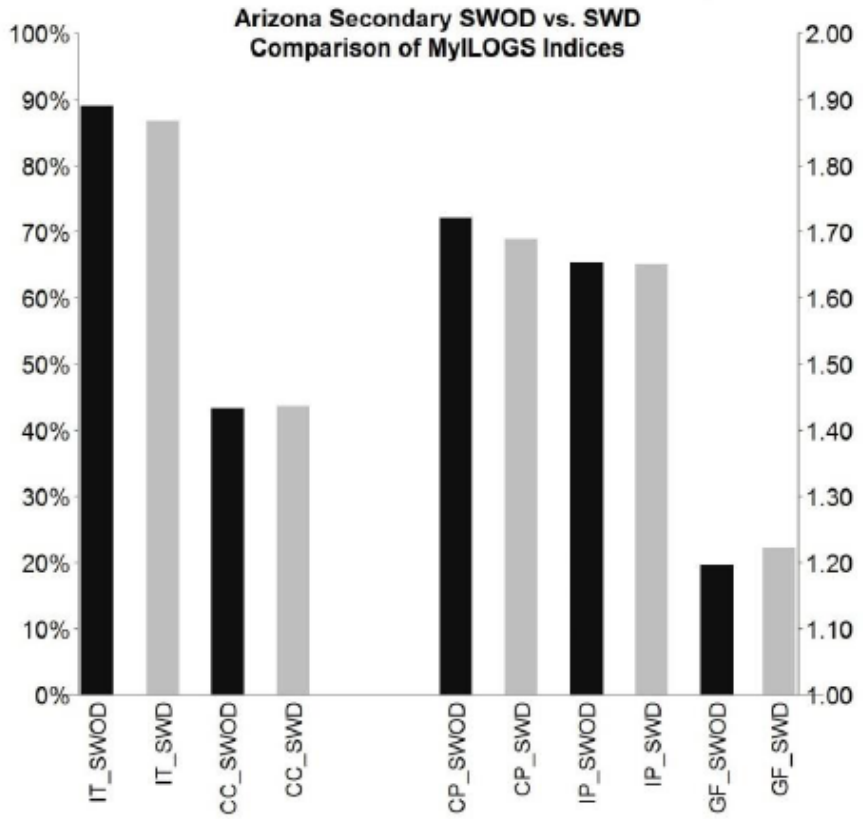
- ICCs (Teacher-Observer) for Observations on 6 random Detail Days each Year:

  InstrTime = .80; CogProcess = .28;

  InstrPractice = .39; GroupFormat = .45

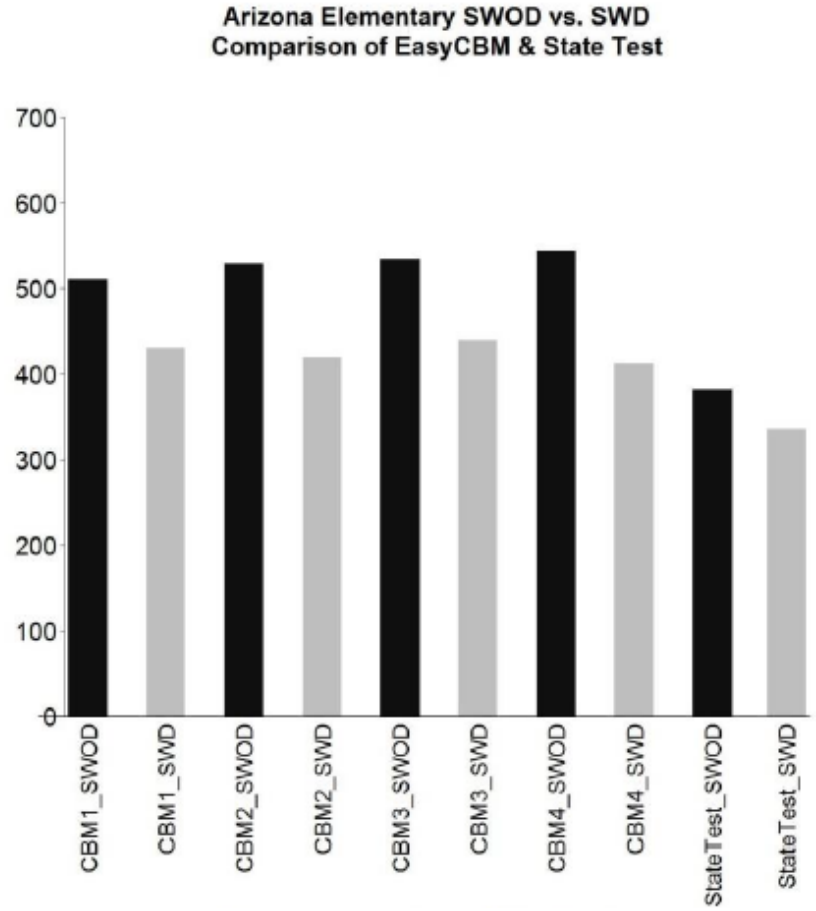
Comparison of OTL Indices for AZ Students

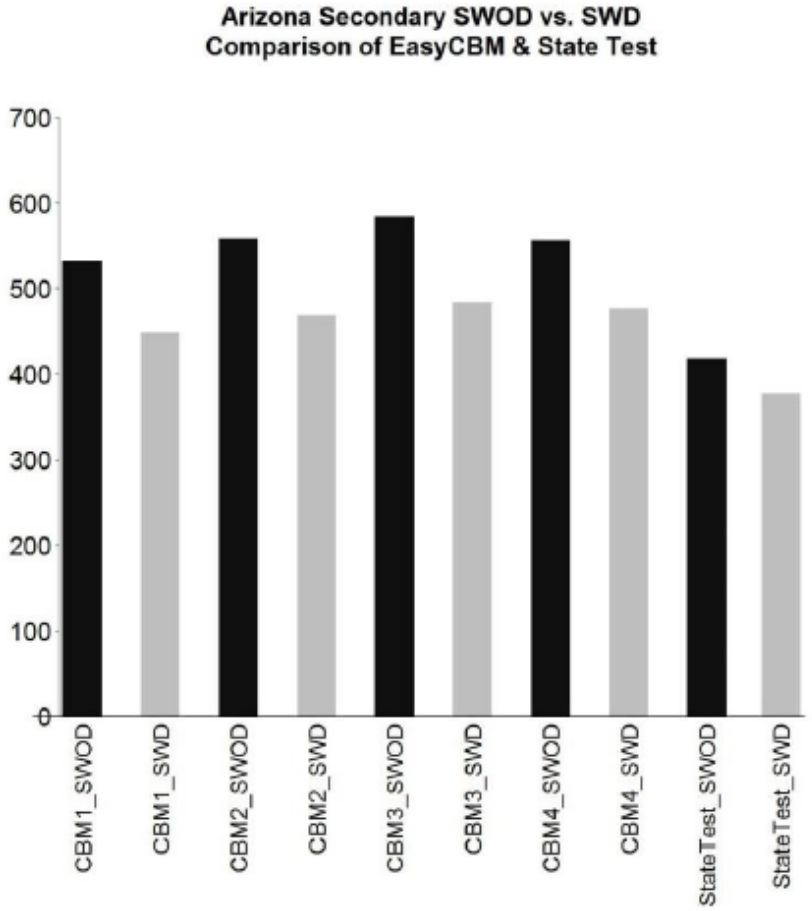




SWOD Black **SWD Gray**

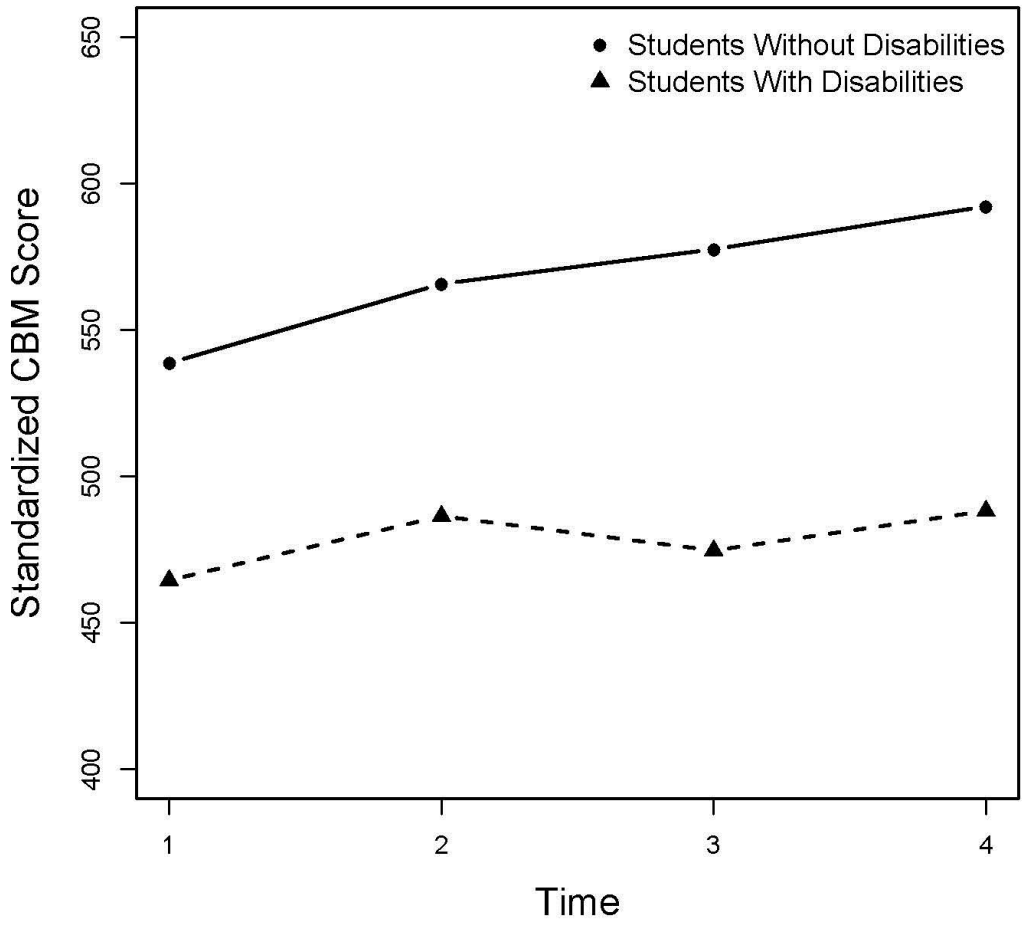
Comparison of Interim & End-of-Year Test Results for AZ Students





SWOD Black **SWD Gray**

Within Year Standardized Mathematics CBM Growth



Conclusion

Offering students with disabilities the same amount of instruction on the same content standards in the same general education classrooms was found to offer **the same historic results—large and persistent gaps in achievement -- in comparison to students without disabilities.**

The findings in Year 2 replicated those from Year 1. Thus, it indicates that students with disabilities will need more instructional time on the intended curriculum, and perhaps more differentiated instruction to increase their rate of achievement enough to close gaps that currently exist between them and students without disabilities.

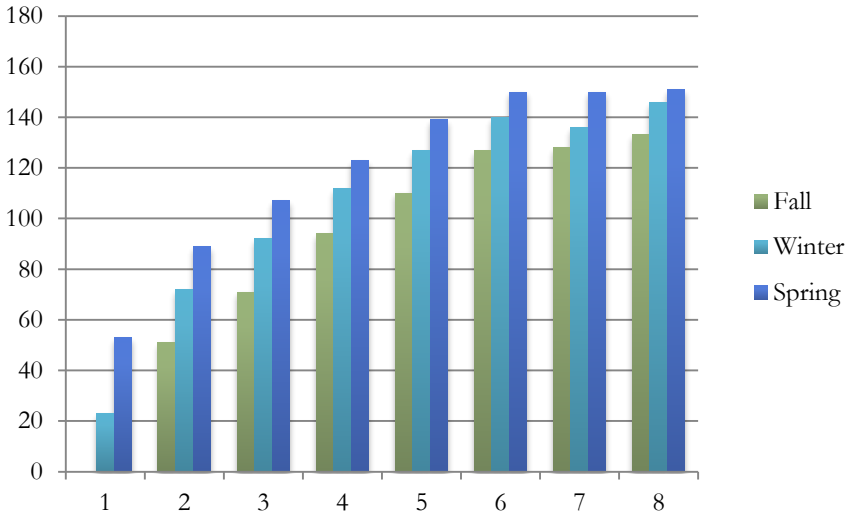
What are the Major Findings on CBMs for Within Year Growth?

What does ORF growth look like?

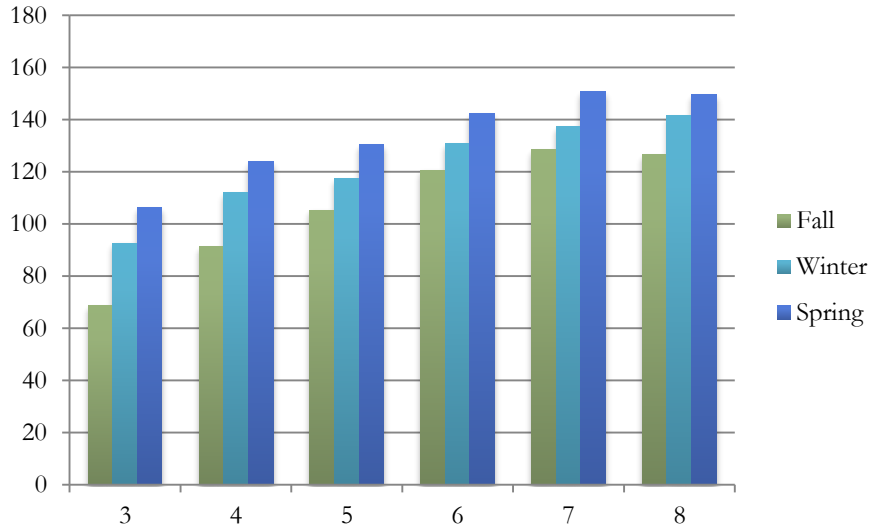
What does math growth look like?

How are teachers measuring growth?

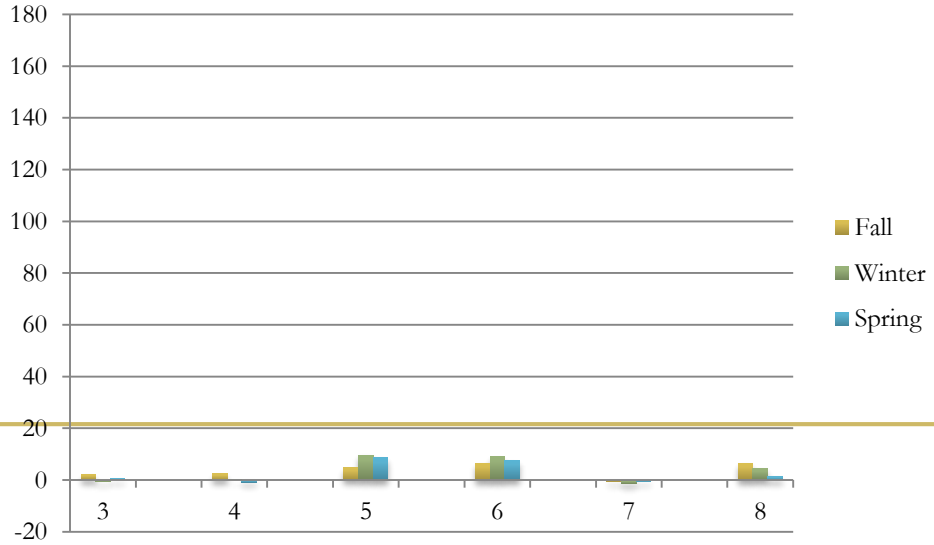
Oral Reading Fluency



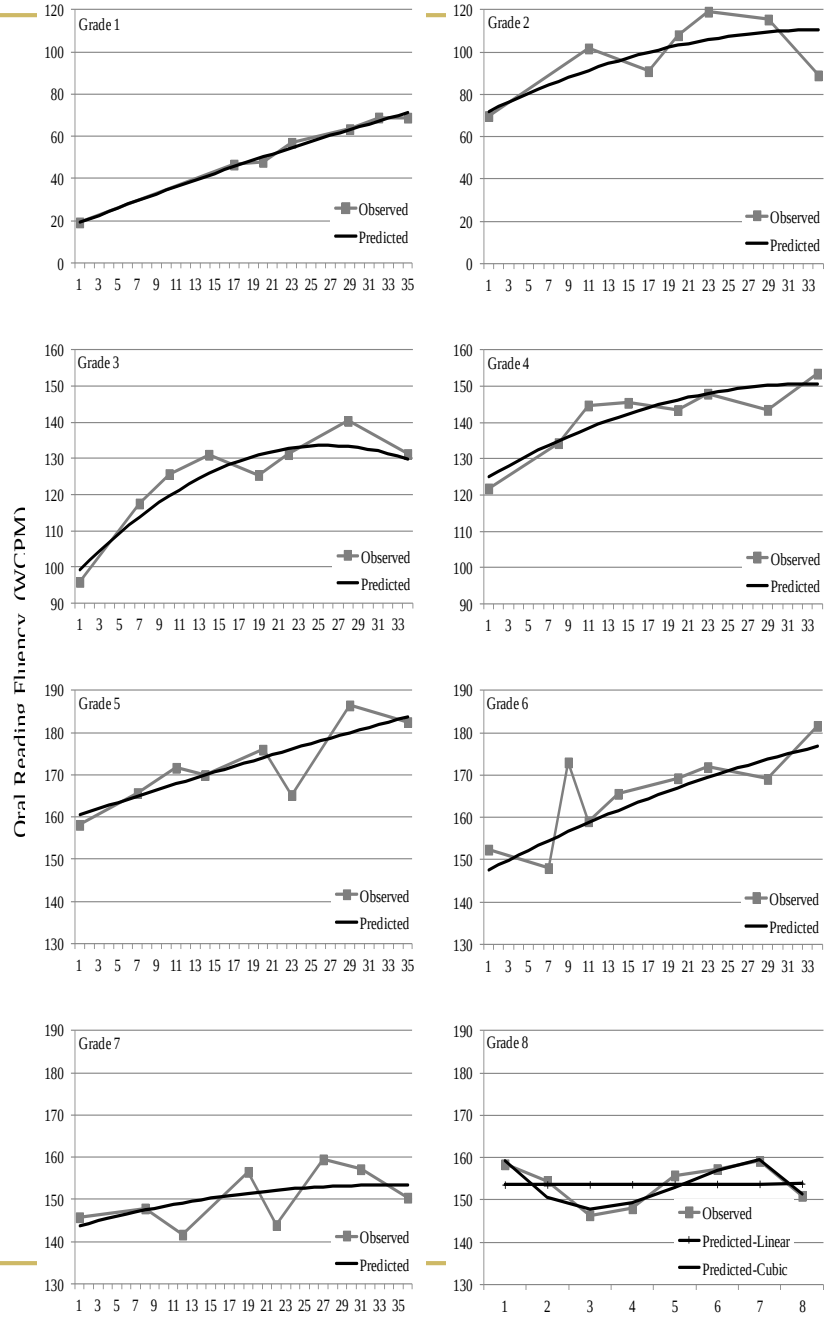
Hasbrouck & Tindal, 2006



Yeo, Fearrington, & Christ (2011)



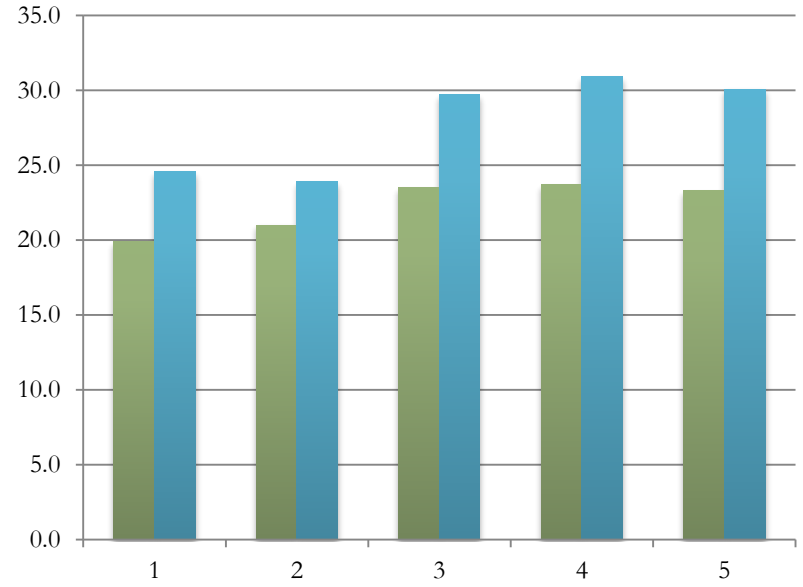
- Comparing the trajectories across grades, we found that a decelerating growth curve best described ORF data.
- On average, across grades, students exhibit a decrease in growth across the year.



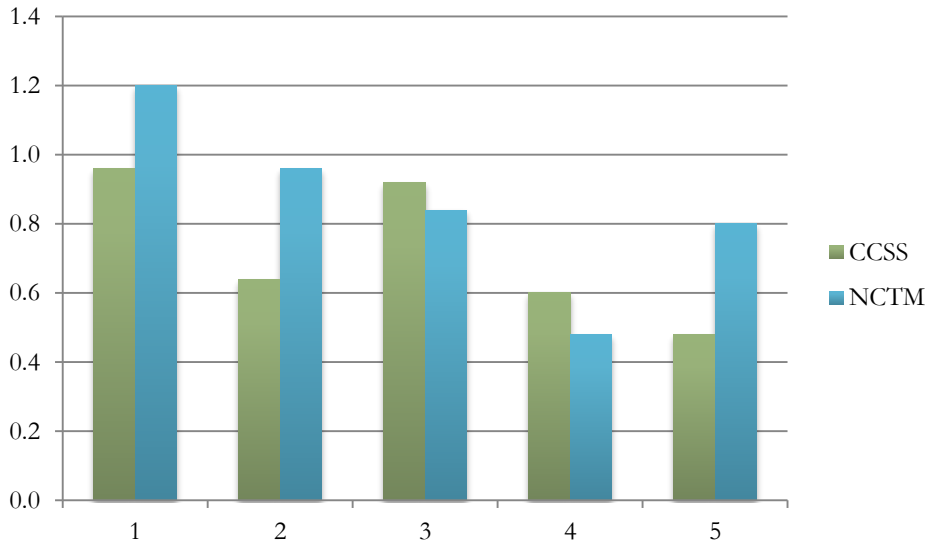
Nese, Biancarosa, Cummings, Kennedy, Alonzo, Tindal. In search of average growth: describing within-year oral reading fluency growth for grades 1-8. *Journal of School Psychology.*

Math Growth

Intercept



Slope



Measurement Sufficiency

Final Conditional Model with Special Education Status and Measurement Condition

Fixed Effect	Coefficient	Std Error	*t*-ratio	*d.f.*	*p*-value
		Grade 3			
Intercept, β_{00}	88.23	1.286	68.61	1278	<0.001
Special Ed., β_{01}	-19.70	3.041	-6.48	1278	<0.001
Sufficient Msmt., β_{02}	-21.72	2.23	-9.74	1278	<0.001
Slope, β_{10}	0.67	0.03	20.87	1278	<0.001
Special Ed., β_{11}	0.08	0.12	0.67	1278	0.505
Sufficient Msmt., β_{12}	0.16	0.05	2.99	1278	0.003
		Grade 4			
Intercept, β_{00}	107.56	1.09	98.69	1235	<0.001
Special Ed., β_{01}	-23.71	2.70	-8.79	1235	<0.001
Sufficient Msmt., β_{02}	-19.89	2.14	-9.31	1235	<0.001
Slope, β_{10}	0.62	0.03	24.31	1235	<0.001
Special Ed., β_{11}	0.01	0.05	0.16	1235	0.872
Sufficient Msmt., β_{12}	0.12	0.04	2.71	1235	0.007

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Nese, J. F. T., & Tindal, G. (2015). *Evaluating Growth of Students with Significant Cognitive Disabilities on Alternate Assessments*. Paper presented at the annual meeting of the Council on Exceptional Children.

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