Research and Development on Assessment and Accountability for Special Education:
A Coordinated Paper Session

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Moderator

NCAASE National Center on Assessment and Accountability for Special Education

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

Coordinated Paper Session Purpose

- Provide information on the *National Center on Assessment and Accountability for Special Education* (NCAASE), a federally funded national center, http://www.ncaase.com/

- Describe recently completed and ongoing research

- NCAASE is designed to develop and test various approaches for measuring achievement growth of students with and without disabilities

- NCAASE studies formative, interim, and summative assessments from four states: Arizona, North Carolina, Oregon, and Pennsylvania

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NCAASE Primary Research Questions

- What is the natural developmental progress in achievement for students with disabilities?

- What models best characterize student achievement growth (on both alternate and general achievement tests)?

- How do various growth models represent school effects for SWD and SWOD?

- What are the reliability and validity of the growth estimates? How are estimates influenced by contextual differences?

- How do interim assessments contribute to a model of academic growth for SWD and SWOD?

- How can information about opportunity to learn and achievement growth be used to enhance academic outcomes for students with disabilities?

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Five Papers and Discussion

I.   Within-Year Achievement Growth Trajectories Using Progress Monitoring Measures, Gerald Tindal & Joseph Nese

II. Special Education Growth: Contrasting Stable and Variable Identification of Special Education Student Status across Grades, Ann Schulte & Joseph Stevens

III. Mathematics Achievement Growth at the Student and School Levels for Regular and Special Education Elementary Students, Joseph Stevens & Ann Schulte

IV. School Effects on the Middle School Reading Achievement of Students with Disabilities: A Multilevel, Longitudinal Analysis, Gina Biancarosa & Keith Zvoch

V.   Learning to Read: A Review of Research on Growth in Reading Skills, Shawn Irvin, Joseph Nese, & Gerald Tindal

VI. Discussion, H. Gary Cook

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Mathematics Achievement Growth at the Student and School Levels for Regular and Special Education Elementary Students

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Presentation available at:
http://www.uoregon.edu/~stevensj/stevens2013.pdf

And on NCAASE web site soon: http://www.ncaase.com/
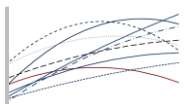
Presentation Purpose

- Describe recent work examining growth for Students With Disabilities (SWD) and Students Without Disabilities (SWOD) by specific exceptionality category

- Provide effect size information of change over time and achievement gaps as additional interpretive context for achievement growth

- Describe initial analyses at the school level

http://www.uoregon.edu/~stevensj/stevens2013.pdf

Background

- Few studies of academic achievement growth study Students With Disabilities (SWD)

- Of those that do, most only examine SWD vs. SWOD

- A few study one or two specific exceptionalities, usually students with Specific Learning Disability or Speech/Language Impairment

- Only a handful have examined students in multiple exceptionality categories (e.g., Carlson et al., 2011; Wei et al., 2011; 2012)

http://www.uoregon.edu/~stevensj/stevens2013.pdf

Sample

- North Carolina database of all students in third grade present in 2000-01 ($N = 103,123$)

- For analysis we excluded:
  - Students not on grade ($N = 8,315$; 8.1%)
  - Students with no math score in any grade 3-5 ($N = 1,207$; 1.2%)
  - Students with missing values on predictor variables: 14 with no ethnicity code, 3 with no sex code, 888 (1%) with no value for parental education, and 30 coded as "other" ethnicity in 2001 because the state dropped the category in subsequent years
  - Students in exceptionality categories with a sample size smaller than 100 and 255 (< 1%) students with missing exceptionality codes

- Analytic sample ($N = 92,045$), 89.3% of database
  - Significantly fewer students with autism, emotional disturbance, intellectual disabilities, and hearing impairments, otherwise no differences

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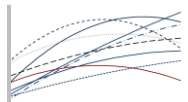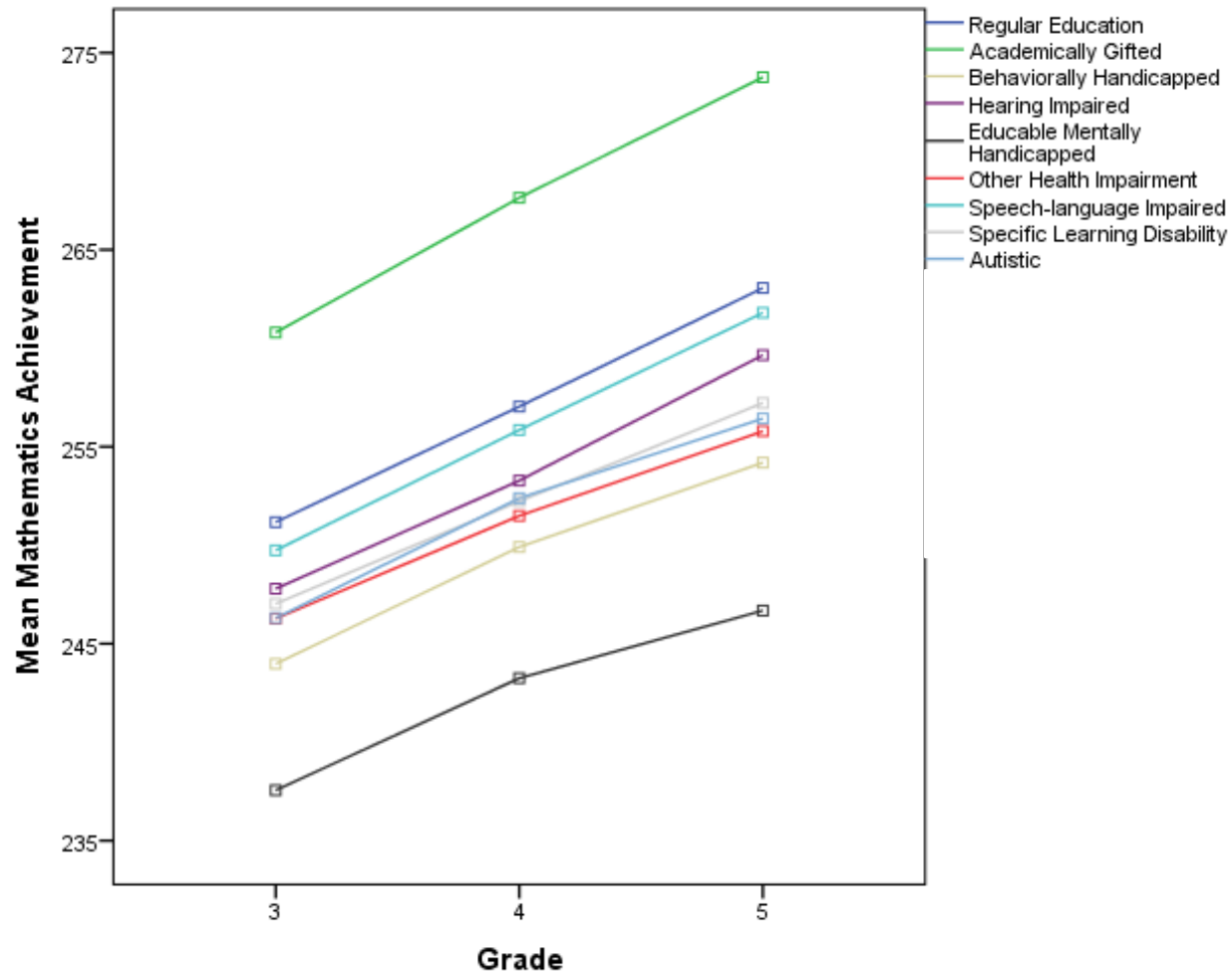Advancing research on growth measures, models, and policies for improved practice

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Method and Analysis

- Outcome measure used was the standardized, second edition North Carolina EOG test score in mathematics

- Forward matching of students grades 3-5

- Two-level linear HLM of student math growth

- For school level analyses listwise deletion of students not in same school grades 3-5

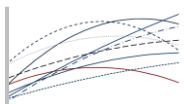- Three level linear HLM of student and school math growth

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Results

Mean Mathematics Achievement by Grade and Exceptionality Category

Two-level HLM (time and students)

- In grade 3, average EOG math performance was 253.27 and linear slope was 5.98

- Conditional model examined membership in seven exceptionality categories as well as demographic variables

  - All exceptionalities showed significantly lower intercepts and slopes except students with hearing or speech language impairments whose slopes did not differ significantly

  - All demographic variables (sex, LEP, FRL, parental ed., race/ethnicity) showed significantly lower intercepts except parental ed. (significantly higher) and Asian (no difference)

  - Female, LEP, and Black students did not differ in slope, FRL and American Indian students had significantly lower slopes, Asian and Hispanic students as well as students with higher parental ed. Had higher slopes

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Mathematics Growth Effect Size Over Time by Student Group

| Student Group	Grade Transition	
	3-4	4-5
Regular Education	0.81	0.78
Academically Gifted	1.15	0.99
Autism	0.75	0.42
Emotional Disturbance	0.84	0.54
Intellectual Disability	1.19	0.67
Hearing Impairment	0.75	0.81
Other Health Impairment	0.72	0.54
Specific Learning Disability	0.75	0.66
Speech Language Impairment	0.78	0.70

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Mathematics Achievement Gap Effect Size by Exceptionality Category in Comparison to SWOD

Student Group	Grade		
	3	4	5
Autism	-0.76	-0.68	-0.87
Emotional Disturbance	-1.07	-0.98	-1.13
Intellectual Disability	-1.93	-1.79	-1.99
Hearing Impairment	-0.56	-0.57	-0.50
Other Health Impairment	-0.76	-0.79	-0.94
Specific Learning Disability	-0.66	-0.70	-0.78
Speech Language Impairment	-0.30	-0.26	-0.25

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School Level Results

- Higher school intercepts (Grade 3 average achievement) significantly associated with:

  - Higher proportion of regular education students

  - Higher parental education

- Higher school slopes significantly associated with:

  - Smaller proportion Free Lunch students in school

  - Smaller school size

- School intercepts more strongly correlated with school composition than school slopes

School Level Results: Lower proportion FRL and smaller schools associated with higher growth
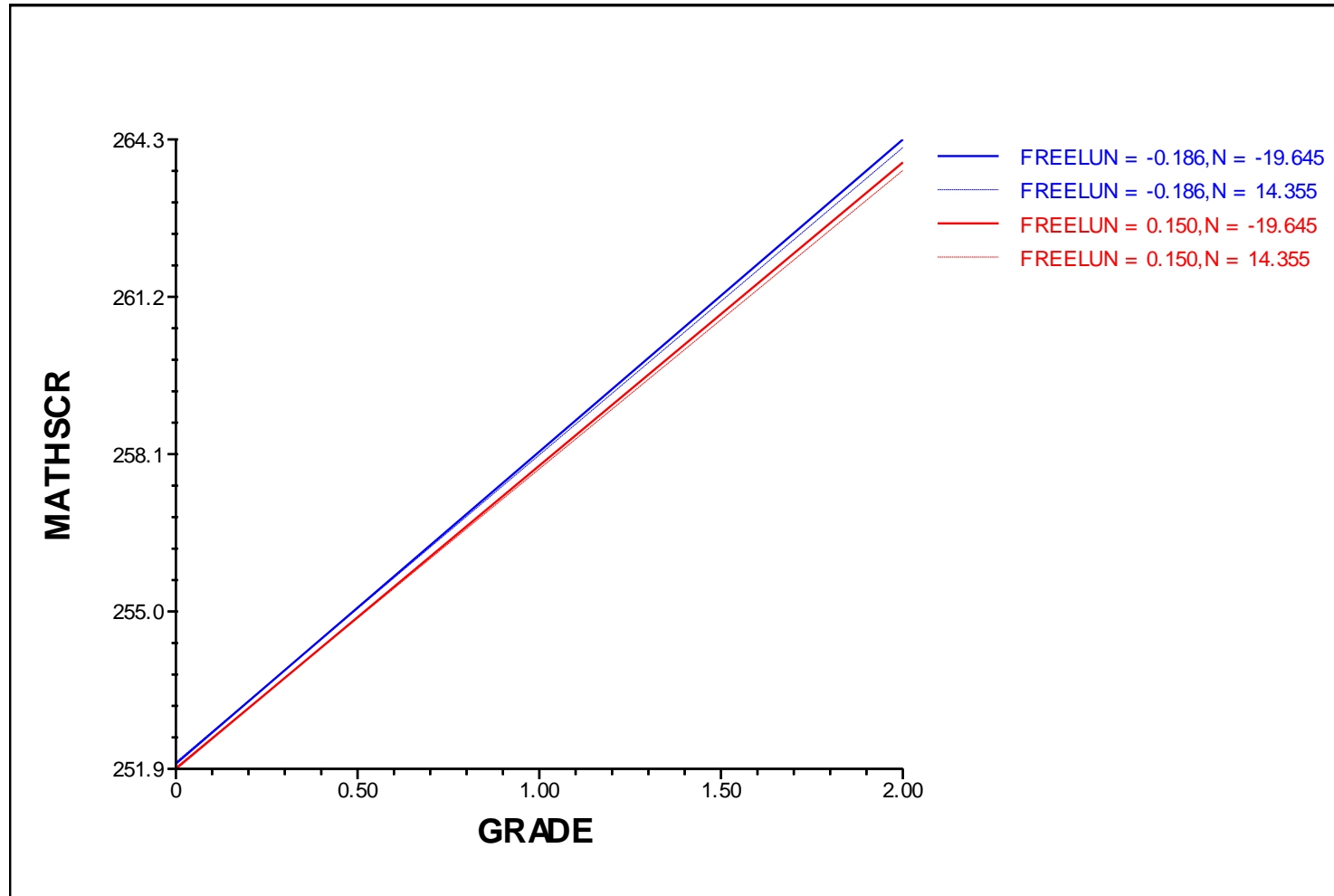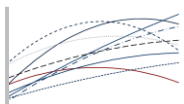
School Level Results: Relationship between intercept and slope for low and high SWD schools
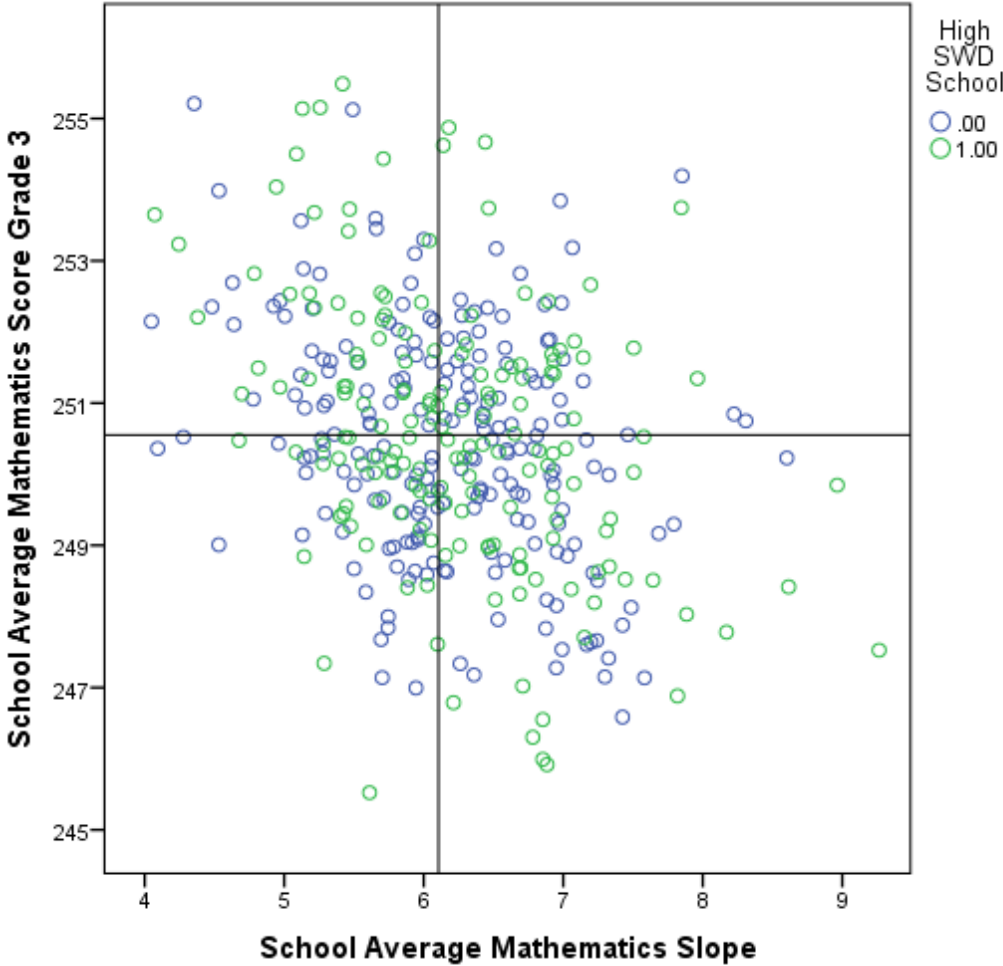
Conclusions & Future Directions

- Substantial differences in growth by exceptionality category

- Differences need to be considered in setting policy and goals for improvement

- Growth effect sizes decline over grades

- Achievement gaps stable or increasing over grades

- School intercept and growth negatively correlated in North Carolina

- School average intercepts more strongly associated with school composition than school average slopes

- Future directions:
    - Additional grades, cohorts, and states
    - Normative growth by exceptionality

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