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 use?
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

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

Grade

3 4 5 6 7
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

<table>
<thead>
<tr>
<th>Fixed Effect</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-ratio</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>For intercept</td>
<td>97.10</td>
<td>1.36</td>
<td>71.38</td>
<td>958</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>For slope</td>
<td>0.65</td>
<td>0.04</td>
<td>17.52</td>
<td>958</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Grade 4 Conditional Model with Student Characteristics and Measurement Conditions

<table>
<thead>
<tr>
<th>Fixed effect</th>
<th>Coefficient</th>
<th>SE</th>
<th>t-ratio</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>115.61</td>
<td>2.70</td>
<td>42.83</td>
<td>952</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Sex</td>
<td>-0.93</td>
<td>2.47</td>
<td>-0.38</td>
<td>952</td>
<td>0.707</td>
</tr>
<tr>
<td>Disability</td>
<td>-25.32</td>
<td>3.71</td>
<td>-6.82</td>
<td>952</td>
<td>&lt;0.000</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>-1.56</td>
<td>2.58</td>
<td>-0.61</td>
<td>952</td>
<td>0.545</td>
</tr>
<tr>
<td>ELL</td>
<td>-23.83</td>
<td>3.90</td>
<td>-6.11</td>
<td>952</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Grade Level</td>
<td>-11.04</td>
<td>4.13</td>
<td>-2.67</td>
<td>952</td>
<td>0.008</td>
</tr>
<tr>
<td>Performances</td>
<td>-2.52</td>
<td>0.38</td>
<td>-6.60</td>
<td>952</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

| 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)

<table>
<thead>
<tr>
<th>Grade 3</th>
<th>Low</th>
<th>Nearly Meets</th>
<th>Meets</th>
<th>Exceeds</th>
<th>Level Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>156</td>
<td>35</td>
<td>9</td>
<td>0</td>
<td>0 (-3 levels)</td>
</tr>
<tr>
<td>Nearly Meets</td>
<td>33</td>
<td>53</td>
<td>48</td>
<td>8</td>
<td>17 (-2 levels)</td>
</tr>
<tr>
<td>Meets</td>
<td>5</td>
<td>40</td>
<td>143</td>
<td>114</td>
<td>197 (-1 level)</td>
</tr>
<tr>
<td>Exceeds</td>
<td>0</td>
<td>1</td>
<td>21</td>
<td>115</td>
<td>467 (no change)</td>
</tr>
</tbody>
</table>

Level Change

(+3 levels) (+2 levels) (+1 level) (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)

<table>
<thead>
<tr>
<th>Grade 4</th>
<th>Low</th>
<th>Nearly Meets</th>
<th>Meets</th>
<th>Exceeds</th>
<th>Level Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>163</td>
<td>13</td>
<td>3</td>
<td>0</td>
<td>0 (-3 levels)</td>
</tr>
<tr>
<td>Nearly Meets</td>
<td>42</td>
<td>48</td>
<td>29</td>
<td>4</td>
<td>7 (-2 levels)</td>
</tr>
<tr>
<td>Meets</td>
<td>15</td>
<td>28</td>
<td>99</td>
<td>49</td>
<td>91 (-1 level)</td>
</tr>
<tr>
<td>Exceeds</td>
<td>3</td>
<td>2</td>
<td>41</td>
<td>95</td>
<td>405 (no change)</td>
</tr>
</tbody>
</table>

Level Change

(+3 levels) (+2 levels) (+1 level) (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

a) Math

b) Reading

Test Opportunity

Reference*  Bubble*  BelowBubble*  Bubble, LEP*  LEP*  Bubble, SpEd*  SpEd*

Probability of passing

1  2  3  1  2  3
Multiple Testing Opportunities

a) Opportunity 1

b) Opportunity 2

c) Opportunity 3

d) AYP
SWSCD Alternate-General Participation

![Graphs showing probability distribution for Grade 3 and Grade 6 across different groups (ASD, ASDbub, ID, IDbub, LD, LDbub) for Year 1-2 and Year 2-3.](#)
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

Definition: Opportunity to Learn
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.

(Kurz, 2011)

A unified conceptualization of OTL based on 50+ years of empirical research.
### MyiLOGS: Calendar Reporting

#### December 2010

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1C1P02 Compare/Order</td>
<td>Time Not Available for Instruction 40 min.</td>
<td>S2C2P01 Theoretical/experimental</td>
<td>S2C2P01 Theoretical/experimental</td>
<td>Testing 60 min.</td>
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<tr>
<td>S1C1P02 Compare/Order</td>
<td>Time Not Available for Instruction 40 min.</td>
<td>S2C2P01 Theoretical/experimental</td>
<td>S2C2P01 Theoretical/experimental</td>
<td>Time Not Available for Instruction 15 min.</td>
</tr>
<tr>
<td>S1C1P02 Compare/Order</td>
<td>Time Not Available for Instruction 40 min.</td>
<td>S2C2P01 Theoretical/experimental</td>
<td>S2C2P01 Theoretical/experimental</td>
<td>Concept Review Bell Work 5 min.</td>
</tr>
<tr>
<td>S1C1P02 Compare/Order</td>
<td>Time Not Available for Instruction 40 min.</td>
<td>S2C2P01 Theoretical/experimental</td>
<td>S2C2P01 Theoretical/experimental</td>
<td>Concept Review Bell Work 5 min.</td>
</tr>
<tr>
<td>S1C1P02 Compare/Order</td>
<td>Time Not Available for Instruction 40 min.</td>
<td>S2C2P01 Theoretical/experimental</td>
<td>S2C2P01 Theoretical/experimental</td>
<td>Concept Review Bell Work 5 min.</td>
</tr>
<tr>
<td>S1C1P02 Compare/Order</td>
<td>Time Not Available for Instruction 40 min.</td>
<td>S2C2P01 Theoretical/experimental</td>
<td>S2C2P01 Theoretical/experimental</td>
<td>Concept Review Bell Work 5 min.</td>
</tr>
<tr>
<td>S1C1P02 Compare/Order</td>
<td>Time Not Available for Instruction 40 min.</td>
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<td>Concept Review Bell Work 5 min.</td>
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<td>Time Not Available for Instruction 40 min.</td>
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<td>Concept Review Bell Work 5 min.</td>
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</tr>
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<td>Concept Review Bell Work 5 min.</td>
</tr>
</tbody>
</table>

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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
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

State Achievement Test 2013

Classroom Instruction
Grades 4 - 8

Daily MyiLOGS Records Class-wide
Sample of 30-45 days for Target Students

Easy CBM BM 1
Easy CBM BM 2
Easy CBM BM 3
Easy CBM BM 1

State Achievement Test 2014
Multiple Measures Study: Year 1

Findings

- Teachers (N = 69) and students (N = 261; 136 SWD + 125 SWoD) from AZ & OR schools grades 4th-8th.

- 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

http://www.ncaase.com