Growth Models for Students with Significant Cognitive Disabilities

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Study Purpose

This descriptive study explores using the transition matrix model as a measure of student growth for SWSCDs. Although this model holds promise for implementation with AA-AAS, there are several challenges that states must address during implementation, leading to the following research questions focusing on their feasibility:

1)Is the transition matrix model a feasible method for including SWSCDs who participate in AA-AAS in growth models for AYP calculations?

2)What are the significant challenges faced in implementing such a growth model?

Background

Students with significant cognitive disabilities (SWSCDs) are difficult to include in statewide accountability growth models and adequate yearly progress (AYP) determinations due to several measurement and data system obstacles, including data system integrity, missing data, student mobility, student attrition, grade level floor, and scaling. Current thinking suggests that implementation of transition matrix growth model approaches for alternate assessments based on alternate achievement standards (AA-AAS) may be the only possible growth model approach for many states (Tindal, Schulte, Elliot, & Stevens, 2011). Even challenges to group homogeneity exist (Farley, Saven, Nese, & Tindal, 2013).

Materials and Methods

This descriptive study was conducted using statewide data from the Oregon AA-AAS for SWSCDs from ODE for the 2009-2010 and 2010-2011 school years. This study used data from the reading assessment for students in grades 3-8.

Setting and Participants

The total sample included 7,181 SWSCDs who took the Oregon AA-AAS for Reading in either school year 2009-10 or 2010-11. The analytic sample includes only 3,470 students who took the test in both academic years: 3,430 of whom advanced to the next grade, and 40 who were retained in the same grade. Retained students were not included as part of the cohort.

Analyses

The four categories in the matrix include: *Does Not Yet Meet*, *Nearly Meets*, *Meets*, *Exceeds*. Students were given +1 for improving one performance level and -1 for falling one performance level. For example, if one student went from Does Not Yet meet to Exceeds, they rose three categories, yielding a +3. These individual results were summarized at the state level and crosstabulated by grade.

Changes in Performance Category from 2009-10 to 2010-11

	-3	-2	-1	0	1	2	3	Total
Grade 4	1	17	119	482	171	16	1	807
Grade 5	4	19	141	536	137	9	0	846
Grade 6	0	4	72	378	143	39	1	637
Grade 7	2	7	67	408	99	8	0	591
Grade 8	1	3	99	377	65	3	1	549
	-3	-2	-1	0	1	2	3	
Totals	8	50	498	2181	615	75	3	3430

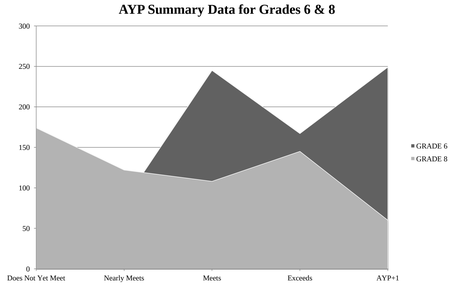
Results

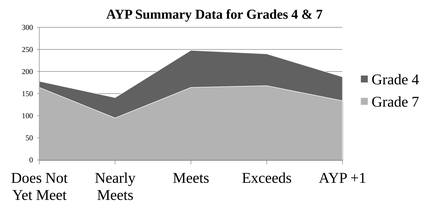
AYP+1 ratings were calculated by multiplying the number of levels gained by +1 pt and the number of levels lost by -1 pt. Sums reflect categorical trends. For example, in the *Nearly Meets* level, Grade 6, there were (6*-1) students who moved down one level from *Nearly Meets* to *Does Not Yet Meet*, (22*0) students who remained at *Nearly Meets*, (45*1) students who moved up to *Meets* from *Nearly Meets*, and (8*2) students who moved from *Nearly Meets* to *Exceeds*. Summing these totals, -6 + 0 + 45 + 16, equals the AYP+1 rating for that category of 55.

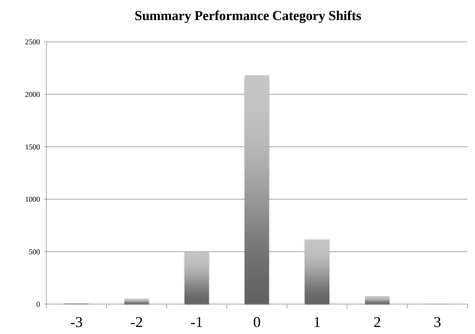
2009-10 Transition to 2010-11 School Year:

Proficiency level shifts for Grades 6 & 8

	2010-11				AYP +1
2009-10					
GRADE 6					
	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Does Not Yet Meet	133	45	31	1	110
Nearly Meets	6	22	45	8	55
Meets	3	15	118	53	32
Exceeds	0	1	51	105	52
TOTALS	**142**	**83**	**245**	**167**	**249**
GRADE 8					
	Does Not Yet Meet	Nearly Meets	Meets	Exceeds	
Does Not Yet Meet	142	7	3	1	16
Nearly Meets	30	67	8	0	-22
Meets	1	46	74	50	2
Exceeds	1	2	23	94	64
TOTALS	**174**	**122**	**108**	**145**	**60**







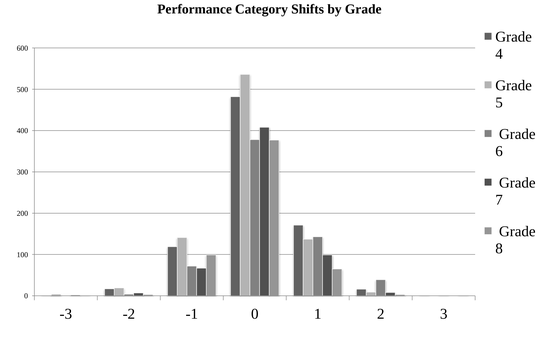
Within Group Trends

The underlying assumption when establishing growth models is that you need to compare the exact same students at two points in time. What if there are criterion indicators that demonstrate that the groups, even though composed of the exact same students, are shifting in important ways?

Trends in Disability Category Shifts

	Disability Category 10-11					
Disability Category 09-10	**ID**	**CD**	**OHI**	**Autism**	**SLD**	**Total**
Intellectual Disability (ID)	0	9	6	5	2	22
Communication Disorder (CD)	29	9	8	4	47	97
Other Health Impairments (OHI)	18	2	0	5	2	27
Autism Spectrum Disorder	10	0	4	0	3	17
Specific Learning Disability (SLD)	12	16	7	1	0	36
Total	69	36	25	15	54	199

*48 other students shifted disability categories as well.



Change in RIT Score – Students who advanced

Grade	> 60 pt ↓	31 to 60 pt ↓	1 to 30 pt ↓	0	1 to 30 pt ⇧	31 to 60 pt ⇧	> 60 pt ⇧	Total
4	0	6	158	51	570	22	0	807
5	0	15	216	41	557	17	0	846
6	1	14	381	49	182	10	0	637
7	3	6	136	40	396	10	0	591
8	1	5	147	27	358	10	1	549
Total	**5**	**46**	**1038**	**208**	**2063**	**69**	**1**	**3430**

Change in RIT Score – Students who were retained

Grade	> 60 pt ↓	31 to 60 pt ↓	1 to 30 pt ↓	0	1 to 30 pt ⇧	31 to 60 pt ⇧	>61 pt ⇧	Total
3	0	0	2	0	0	10	0	12
4	0	1	0	0	0	3	1	5
5	0	0	3	0	0	6	0	9
6	0	0	1	0	0	3	0	4
7	0	0	0	0	0	3	0	3
8	0	0	1	1	1	5	0	7
Total	**0**	**1**	**7**	**1**	**1**	**30**	**1**	**40**

Literature cited

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For further information

Please contact jsaven@uoregon.edu. More information on this and related projects can be obtained at *http://brt.uoregon.edu*.

Conclusion / Future Directions

The primary conclusions are that meaningful growth models for SWCDs require:

- Improved standard setting or replaced it with a statistical methodology
- developed statistical scaling and distribution correction techniques that allow for cross-test comparisons,
- developed, maintained, and increased data system integrity,
- accounted for attrition/missing values (reference group) in a justifiable manner,
- accounted for grade level and disability category fluctuations,
- defined how much growth is sufficient (particularly at the school level) and,
- ensured that the growth model approach selected is consistent with the state's overall conceptual and practical assessment model (e.g., how the model fits within the general assessment approach).