
An Analysis of Growth in Alternate Assessments

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Purpose

- Investigate patterns in individual student AYP designations
 - Two cohorts of students:
 - **Cohort 1:** Matriculate from grade 3 in 06-07 to grade 8 in 11-12
 - **Cohort 2:** Matriculate from grade 4 in 06-07 to grade 8 in 10-11
 - Note that all standards stayed constant across all years of the study

Primary Questions

- 1) What does “**growth**”, viewed through **AYP designations**, look like for the **alternate assessment population**?
 - 2) Are there **typical** matriculation **patterns**?
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Descriptive Patterns: C1

Students with data for
4 of the 6 years

Pattern	Frequency
1111	2
1113	1
2311	1
2332	1
3111	1
3312	1
3322	2
3333	1
3344	1
3423	1
3433	1
3444	1
4323	1
4424	1
4433	1
4434	2
4444	2
Total	21

29% of students
jumped 2 categories

1 = Far Below 3 = Proficient
2 = Below 4 = Advanced

Students with data for
5 of the 6 years

Pattern	Frequency
11111	4
11211	1
22311	1
33323	1
33333	1
33442	1
34332	1
43311	1
43443	1
44423	1
44424	1
44432	1
44434	3
44444	2
Total	20

25% of students
jumped 2 categories

Students with data for
6 of the 6 years

Pattern	Frequency
111111	3
121211	1
122211	1
122312	1
212311	1
223322	1
233212	1
233311	1
333312	1
333321	1
333422	1
342322	1
343322	1
343323	1
344424	1
344433	1
444423	1
444434	2
444444	2
Total	23

39% of students
jumped 2 categories

Dichotomous Descriptive Patterns: C1

0 = Did Not Meet (Far Below & Below) 1 = Met (Proficient & Advanced)

Students with data for
4 of the 6 years

Pattern	Frequency
0000	2
0001	1
0100	1
0110	1
1000	1
1100	3
1101	3
1111	9
Total	21

Students with data for
5 of the 6 years

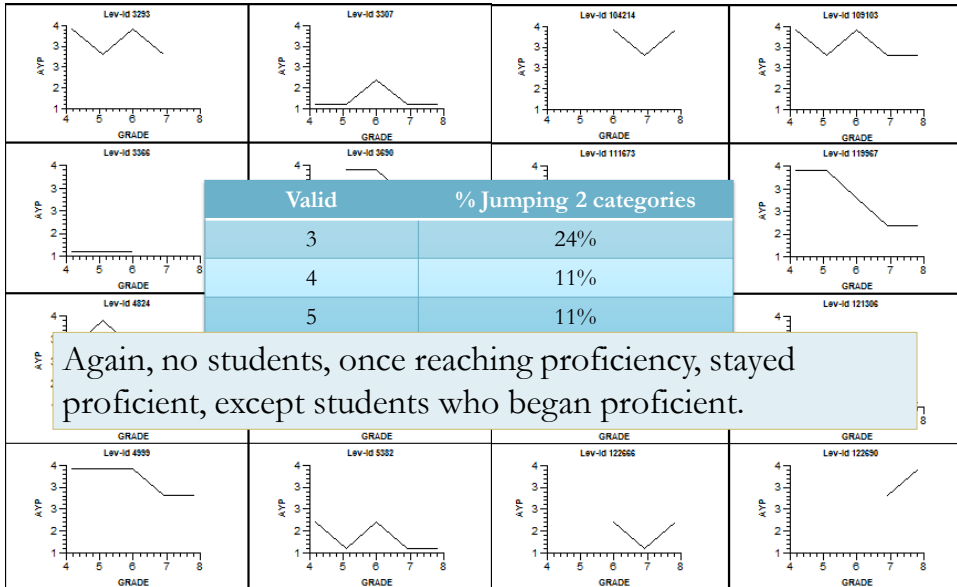
Pattern	Frequency
00000	5
00100	1
11100	1
11101	3
11110	3
11111	7
Total	20

Students with data for
6 of the 6 years

Pattern	Frequency
000000	5
000100	2
001100	1
011000	1
011100	1
110100	1
111100	4
111101	3
111111	5
Total	23

Note that no students, once reaching proficiency, stayed proficient, except students who began proficient.

Graphical Pattern Representation: C2



Kendall's Tau: C1

(ordinal correlation coefficient)

Correlations

	06/07	07/08	08/09	09/10	10/11	11/12
06/07		42	43	42	40	33
07/08	.759**		51	47	46	35
08/09	.829**	.740**		63	60	48
09/10	.717**	.671**	.815**		70	56
10/11	.776**	.581**	.733**	.669**		71
11/12	.806**	.734**	.828**	.756**	.790**	

Kendall's Tau: C2 (ordinal correlation coefficient)

Correlations

	06/07	07/08	08/09	09/10	10/11
06/07		51	52	44	44
07/08	.673**		53	45	43
08/09	.802**	.767**		69	65
09/10	.737**	.639**	.779**		75
10/11	.719**	.752**	.782**	.791**	

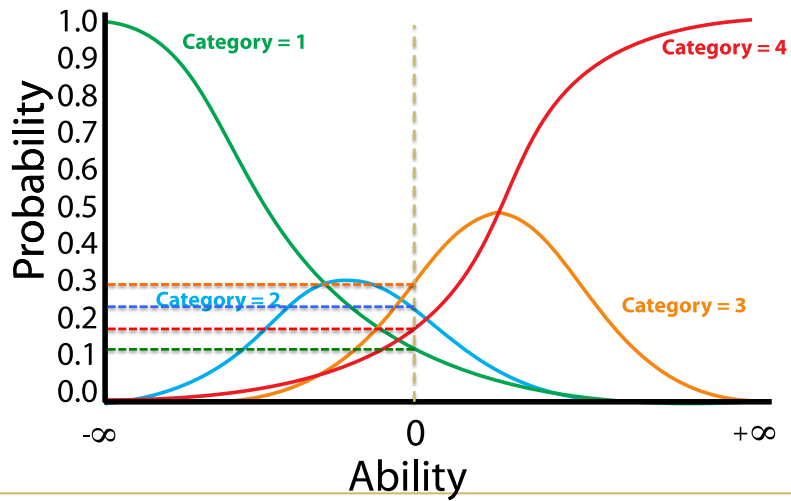
Modeling Growth with Ordinal Data

- Hierarchical Generalized Linear Growth Model
- Method for investigating how students change AYP categories over time

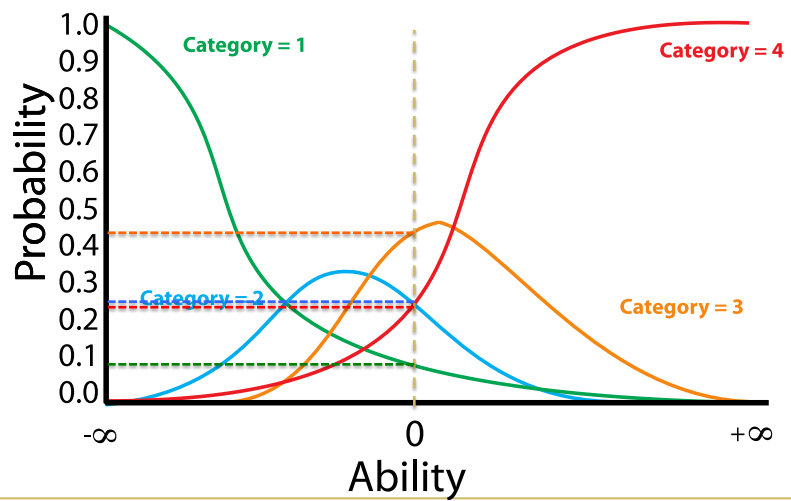
Primary purpose

- Examine how the **probability** of a student scoring in each **category** changes **over time**

Theory behind model (year 1)



Theory behind model (year 2)



Model Results: C1

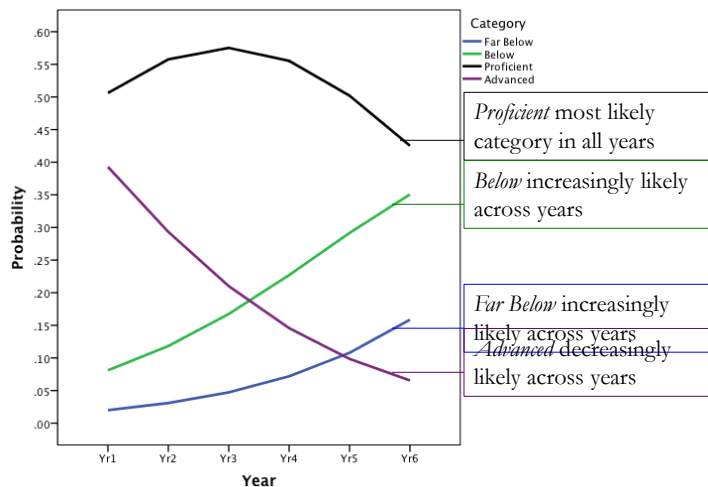
Category	Grade/Year of Matriculation					
	3	4	5	6	7	8
Far Below	0.02	0.03	0.05	0.07	0.11	0.16
Below	0.08	0.12	0.17	0.23	0.29	0.35
Proficient	0.51	0.56	0.58	0.56	0.50	0.43
Advanced	0.39	0.29	0.21	0.15	0.10	0.07

Columns indicate the probability of students being in one category over another within one year.

Rows indicate how the probability of being in one category changes over the six years for this cohort of students.

Graphic Representation of Model: C1

Classification Probabilities



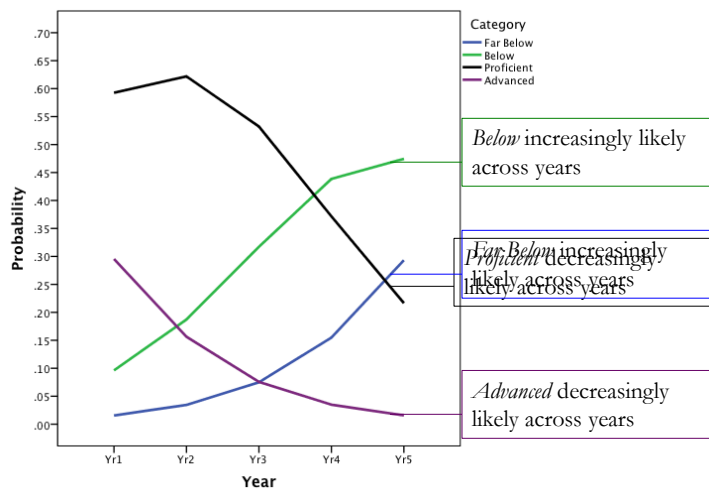
Model Results: C2

Category	Grade/Year of Matriculation					
	3	4	5	6	7	8
Far Below	0.02	0.03	0.05	0.07	0.11	0.16
Below	0.08	0.12	0.17	0.23	0.29	0.35
Proficient	0.51	0.56	0.58	0.56	0.50	0.43
Advanced	0.39	0.29	0.21	0.15	0.10	0.07

?

Graphic Representation of Model: C2

Classification Probabilities



Conclusions

Question: What does “growth”, viewed through AYP designations, look like for the alternate assessment population?

Cohort 1

- *Proficient* category was most likely across all years
- *Advanced* category monotonically **decreased** in probability across years
- *Far Below* and *Below* categories monotonically **increased** in probability across years

Cohort 2

- The probability of students scoring in the **passing** categories (3 or 4) **decreases** across years
- By grade 8, *Below* is most likely category

Kendall's Tau suggests that, for both groups, there is a strong correlation between where students begin and how they progress

Conclusions

Question: Are there typical matriculation patterns?

- Frequency and visual inspections suggest changes are quite individual
 - Students taking the Alternate Assessment are quite variable, given the unique nature of each student's disability, or combination of disabilities.

Summary and Discussion

- This presentation focused primarily exploring **ordinal patterns** of achievement for students taking the **Alaska Alternate Assessment**

But

- Growth is increasingly being used within **accountability** models
 - How do students taking the **alternate assessment** fit within these frameworks?
 - Should ordinal models be considered?
 - “True” interval property tests are hard to come by (see Ballou, 2008)
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