Documenting Growth for Students with Significant Cognitive Disabilities

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Diversity and Testing Issues
Session for NCME

Abstract

In this presentation, different growth models will be presented for two different populations: (a) a transition matrix will be used to show growth (across years) for students with significant cognitive disabilities taking a statewide test, and (b) hierarchical linear model to show (within year) growth for students with significant cognitive disabilities participating in alternate assessments based on alternate achievement standards. Both analyses highlight the need for complete and accurate data in making appropriate inferences on growth.

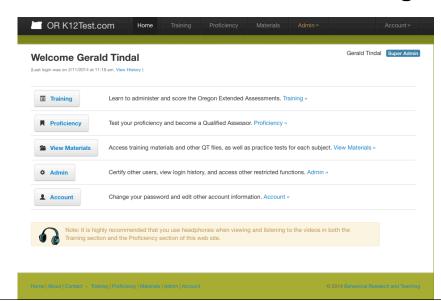# Qualified Assessor & Qualified Trainer

■ **Qualified Assessor (QA)**
  – Prepares materials and setting for individual administration of the assessment
  – Administers assessments directly to students
  – Scores student responses fairly
  – Delivers scores to online data entry system
  – Interprets results for student, family, or educational team
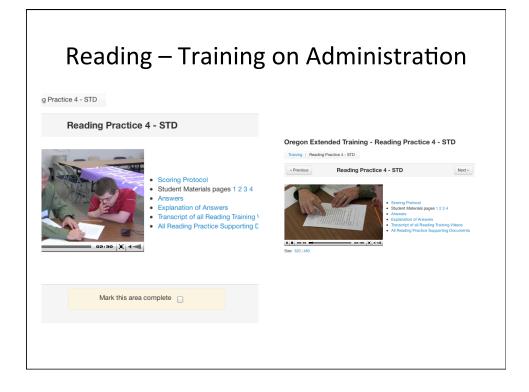 – Maintain security status through District Security Administrator

■ **Qualified Trainer (QT)**
  – All QA tasks, <u>plus</u>:
    • Serves as the local point person
    ■ Provides training and coaching to local Qualified Assessors
    ■ Fluent in updates and changes
    ■ Awards certificates*

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Alternate Assessment Home Page

Reading – Training on Administration

Consider **Standard Administration** of Extended Assessment if:

- **The Student:**
  - Performs well below grade level based on progress monitoring data.
  - Has academic difficulties that are generalized (to all subject areas) and are significant.
  - Reads significantly below enrolled grade level.
- **Instruction:**
  - Is from specialized (but not functional) materials that are reduced in depth, breadth, and complexity.
  - Is accommodated and modified to allow access to instructional information.

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Consider **General Assessment** (with <u>or</u> without accommodations) if:

- **The Student:**
  - Performs at or around grade level based on progress monitoring data.
  - Has academic difficulties that are "mild to moderate" and can typically be addressed by using simplified language.
  - Is reading is within two to three grades of enrolled level.
  - Has academic difficulties that primarily surround reading, but performance in other subject areas is similar to grade-level peers.
- **Instruction:**
  - Is designed from primarily grade level materials.
  - Is accommodated for the student only to access instructional information.

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Extended Assessment Format

- **4 subject areas** (Reading, Writing, Mathematics, Science)
- **2 administration options per area** (Standard, Scaffold)
- **3 grade levels** (Elementary, Middle, High)
    - Reading is the only subject presented in grade <u>bands</u>.
- Internal structure:
  - Prerequisite Skills
  - Independence to Access
  - Content Prompts

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Task1: Prerequisite Skills

Levels of Independence

A – Student Already has this skill	1 - Full Physical Contact for response (e.g., hand over hand)	2 - Partial Physical Contact for response (e.g., nudge or adjust body)	3 - Visual: Materials Movement (e.g., move into line of vision) - Verbal: Auditory Statement (e.g., more than repeat prompt) - Gesture: Hand Signal (e.g., tap table, pick up card)	4 - Independent: No contact and no prompting
I – Inappropriate/ Inaccessible based on the nature of the student's disability				
R - Refusal: Student does not complete or participate with or without assistance				

Prerequisite Skills	Independence for Success						
1. Attention: Hello or Hi _____ (student's name). Student responds to assessor.	A	I	R	1	2	3	4
2. Interaction: Touch a piece of paper. (Tell/Show me when I touch a piece of paper.)	A	I	R	1	2	3	4
3. Letter: Where is a letter? (Tell/Show me when I touch a letter.)	A	I	R	1	2	3	4
4. Word: Where is a word? (Tell/Show me when I touch a word.)	A	I	R	1	2	3	4
5. Word: Where is a word that starts with the letter M? (Tell/Show me when I touch a word that starts with the letter M.)	A	I	R	1	2	3	4
6. Letter Sound: What is the sound of this letter? (while pointing to the letter b). (Tell/Show me the letter that makes the "ba" sound.)	A	I	R	1	2	3	4
7. Sentence: Where is a sentence? (Tell/Show me when I touch a sentence.)	A	I	R	1	2	3	4
8. Story: Where is a story? (Tell/Show me when I touch a story.)	A	I	R	1	2	3	4
9. Story: Where is the title of a story? (Tell/Show me when I touch the title of a story.)	A	I	R	1	2	3	4
10. Paragraph: Where is the beginning of a paragraph? (Tell/Show me when I touch the end of a paragraph.)	A	I	R	1	2	3	4
TOTAL							

Independence for Access (circle the most frequently occurring level from above)	1	2	3	4

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Prerequisite Codes

Entry Code	Administration note	Definition
A	Already (has this skill)	Student already has this skill. (Assessor/teacher judgment).
I	Inappropriate item	Item is inappropriate for administration due to the design of the item and the (sensory) nature of the student's disability.
R	Refusal	Student does not complete or participate.
1	Full Physical	Full physical contact is necessary for the student to respond to this item (e.g. hand-over-hand).
2	Partial Physical	Student requires some physical contact in order to respond to this item.
3	Verbal, visual, or gestural	A statement, adjustment, or movement is necessary in order for the student to respond to this item.
4	Independent	Student responds to this item without assistance of any sort.

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Calculating Independence to Access (Support for Access) Score

- To determine the level of support to provide when moving into the Content Prompts, the Assessor will select the **mode** (i.e. the most commonly occurring level of Independence score from the student's Prerequisite Skills responses). If there are two modes (i.e., two groups with the same number of scores), select the lower of the two.

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Content Prompt Codes

Entry Code	Administration note	Definition
D	Too Difficult	Item is determined too difficult and is not administered to the student based on Assessor/teacher judgment.
I	Inappropriate item	Item is inappropriate for administration due to the design of the item and the (sensory) nature of the student's disability.
0	No credit	Student response is incorrect.
1	Partial credit	Student response is partially correct based on rubric. Student response demonstrates partial understanding but is incomplete.
2	Full credit	Student response is correct based on rubric.

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Participation by Extended Assessment Subject and Disability Category

- On average…
  - 5400 students participate in Reading
  - 4900 students participate in Math
  - 2100 students participate in Writing
  - 1600 students participate in Science
- While all disability categories are represented, the majority of students who participate primarily come from these three disability categories:
  - Intellectual Disability
  - Specific Learning Disability
  - Autism Spectrum Disorder

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Transition in Proficiency – Gr 3 to 4

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

		Grade 4				Off Diagonal Level Change
		Low	Nearly Meets	Meets	Exceeds	
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 – Gr 4 to 5

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

		Grade 5				Off Diagonal Level Change
		Low	Nearly Meets	Meets	Exceeds	
	Low	163	13	3	0	
	Nearly Meets	42	48	29	4	0 (+3 levels)
Grade 4	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).

Unconditional Model

Unconditional Model Parameters (Robust Standard Errors)

Fixed Effects	Fixed Effect		
	Coefficient	SE	p-value
Intercept, β_{00}	102.38	0.60	<0.001
Slope, β_{10}	4.60	0.23	<0.001

Random Effects	Variance	p-value
Intercept, r_{0i}	333.66	<0.001
Slope, r_{1i}	11.35	<0.001
Level-1 residual, e_{ti}	54.12	N/A

Conditional Model

Final Conditional Model Parameters

Fixed Effects	Fixed Effect		
	Coefficient	SE	p-value
Intercept, β_{00}	86.10	1.47	<0.001
Gender, β_{01}	-1.73	0.90	0.053
Ethnicity, β_{02}	-0.85	0.85	0.318
EconDis, β_{03}	3.18	1.04	0.002
Disability, β_{04}	0.11	1.30	0.933
GenEd, β_{05}	-4.90	1.04	<0.001
PerfLevel, β_{06}	26.27	1.13	<0.001
Slope, β_{10}	6.36	0.65	<0.001
Gender, β_{11}	-0.44	0.48	0.357
Ethnicity, β_{12}	-0.32	0.49	0.516
EconDis, β_{13}	0.91	0.52	0.081
Disability, β_{14}	-0.61	0.57	0.287
GenEd, β_{15}	-2.06	0.53	<0.001
PerfLevel, β_{16}	-1.77	0.52	<0.001
Random Effects	**Variance**		**p-value**
Intercept, r_{0i}	134.92		<0.001
Slope, r_{1i}	10.27		<0.001
Level-1 residual, e_{ti}	53.89		N/A

Display of Change