Appendix 2.3A.3

Oregon Extended

Procedures for Reducing the Depth, Breadth, and Complexity of Items

Behavioral Research and Teaching
University of Oregon

Due to the federal regulations provided in December 2003, steps were taken to increase the cognitive accessibility of all items on the Oregon Extended Assessments, both in terms of test design as well as reducing the depth, breadth, and complexity of the test items.

Test Design

Analyzing and removing potential barriers for students with significant cognitive disabilities addressed accessibility limitations related to the test design. Simplified language was used in all text (see *Instrument 1*). Alignment was ensured between teacher-scripted language and student materials. General test layout was considered from the view of readability and legibility. Specific administration directions were limited to a single page of the Scoring Protocol for ease of administration. Student materials were organized for ease of administration onto standard 8 ½" X 11" paper, with the number of items limited such that all items are visually accessible. The administrator can easily mask all items on the page other than the item being tested to maintain the student's attention to the item at hand. Pictures were constructed using primarily black and white for minimal complexity. Individual items were designed such that they were not worded in a negative manner (e.g., "Which of these answers is NOT…"). Student materials text was constructed in an appropriately sized font, typically Tahoma 18-24 or larger. All items were reviewed with administration and development steps toward reducing complexity.

Item Depth, Breadth, and Complexity

Reductions in depth, which is generally defined by Anderson's revision of Bloom's Taxonomy, were accomplished by limiting the process verbs to simpler tasks (recognize, identify, match, understand *versus* analyze, develop, evaluate, create). The team developed items that linked to the relevant Oregon Standards in reading, writing, mathematics, and science at the grades tested. From that point, the teams tried to target performance events that were reduced in terms of depth, but maintained access to appropriate content.

Reductions in breadth, which can be defined in terms of how broad a student's domain of knowledge must be to answer a specific item, were accomplished by limiting the item content to accessible domains. For example, while a general education assessment might target the process of implementing a laboratory experiment in science, the extended assessment might ask the student to define a term that is critical to the experiment. The content is relevant, but the performance demand does not require a wide knowledge set to answer appropriately.

Reductions in complexity, which is generally how difficult the test content is, were accomplished by limiting the difficulty of the content (e.g., adding single-digit integers is much easier than adding imaginary numbers, though the process verb, to add, is the same).

It is critical to mention that depth, breadth, and complexity are intertwined and work together to determine overall item difficulty. They are simply three lenses we look through to systematically address and make items more accessible from a test content perspective.

Independent Analysis
Alignment studies for all content areas of the Oregon Extended assessments were conducted in 2007-08 (reading, writing, math, science). Oregon teachers analyzed each item on every test for alignment to standards in terms of bias (see *Instrument 2*) and difficulty, including depth-of-knowledge (DOK), breadth of knowledge, and content. Math and science alignment studies were conducted anew by Dr. Lindy Crawford in 2010-11 due to the adoption of new state standards and the information was used to guide item adaptations for the 2011-12 secure test items.

Categorical concurrence, range of knowledge, and balance of representation were defined originally by Webb, and adapted by Dr. Tindal for use with students with significant cognitive disabilities, and then defined based on operational use within these Oregon Alignment Studies. Panelists analyzed alignment for each item using the following scale:

3 = Item is directly linked to the standard, though reduced in depth, breadth, and complexity
2 = Item is somewhat linked to the standard, though reduced in depth, breadth, and complexity
1 = Item is vaguely linked to the standard
0 = Item has no link to the standard

The results of these independent studies are published within the relevant annual Oregon Department of Education (ODE) technical reports.

Instrument 1 – Linguistic Complexity Rubric for Universal Design Item-Task Development

Linguistic Feature Degree of Complexity

	Not Complex 1	2	3	4	Most Complex 5
1. Word frequency/familiarity					
2. Word length					
3. Sentence length					
4. Passive voice constructs					
5. Long noun phrases					
6. Long question phrases					
7. Comparative structures					
8. Prepositional phrases					
9. Sentence and discourse structure					
10. Subordinate clauses					
11. Conditional clauses					
12. Relative clauses					
13. Concrete versus abstract or impersonal presentations					
14. Negation					

Instrument 2 – Bias and Sensitivity Review Checklist

Bias deals with problems in the manner that the assessment tasks are formatted so that the performance of the student is negatively affected. Please refer to the following checklist as you review each item in reading and mathematics.

	Yes	*No*	*Uncertain*
Braille and sign language: Are there any problems with the use of words that arise when the tasks are translated into Braille or used with sign language?			
Simplified language in teacher directions and student materials: Are the directions (for teachers) and materials (for students) presented in the most simplified way and without excess language)?			
Response demands: Does the manner in which the student responds prevent accurate measurement of what they know and can do?			
Content: Are there any problems with specific words or terms?			
Access versus target skills: Are there any skills that are required by the student and prevent assessment of the skills targeted in reading, writing, and mathematics?			
Accommodations allowed (versus modifications): Are there sufficient alternatives presented for the student to participate in the tasks?			
Not administered–Inappropriate (NA-I) and Not administered-Proficient (NA-P): Are the rules and conventions for participation clear?			
Race-ethnicity bias: Are any words or phrases discriminatory and result in negative perspectives?			
Gender bias: Are any words or phrases discriminatory and result in negative perspectives?			
Cultural bias: Are any words or phrases discriminatory and result in negative perspectives?			
Language bias: Are any words or phrases discriminatory and result in negative perspectives?			
Value in the community: Are any words or phrases discriminatory and result in negative perspectives?			