Writing Performance Level Descriptors: Applying Lessons Learned from the General Assessment to Alternate Assessments based on Alternate and Modified Achievement Standards

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Performance level descriptors (PLDs) describe the degree of knowledge and skills required of each performance level. PLDs are receiving increased attention under the *No Child Left Behind* Act of 2001 (NCLB), as every assessment developed under this act must include a minimum of three performance levels, with the focus being on what is considered to be proficient. The guidance (USED 2004) also indicates that PLDs need to be written prior to and used for standard setting. Moreover, many researchers argue that the descriptors should be written early in the test development process and be used in developing test blueprints and item specifications.

In fact, the PLDs are of such influence, that in a well-run standard-setting workshop, they determine the rigor of the performance and thus the decisions made about placement of the cut score. Many in the field claim that the descriptors are instrumental to the validity and defensibility of the standard-setting process (cf., Cizek & Bunch, 2007; Hambleton, 2001). PLDs must provide a balance between being specific enough to allow teachers to picture the classroom learning behaviors associated with the knowledge and skills described, yet general enough to apply to multiple forms and formats of the assessment. That is, the PLDs should be written to the standards, not to individual test items. Ideally, they should be written with enough specificity that items or tasks could be developed to address different aspects of the PLDs and thus help to better pinpoint an appropriate cut score.

Understanding the learning progressions of students can help inform the development of these PLDs. One commonly cited definition of a learning progression is that of "a picture of the path students typically follow as they learn…a description of skills, understandings, and knowledge in the sequence in which they typically develop" (Masters & Forster, 1996). Thus, defining the "path" students follow and determining where they should be on that path to be considered basic, proficient, or advanced will go a long way towards crafting meaningful descriptors of those levels.

Although there are a few papers in the field describing best practices for writing PLDs (c.f., Mills & Jaeger, 1998; Perie, 2008, in press), PLDs were a source of difficulty for states during the NCLB peer review process. In fact, writing acceptable descriptors for the alternate achievement standards (the 1% assessment) was one of the last roadblocks for many states receiving full federal approval in June 2007. Now states are facing the same difficulty in developing descriptors for the modified achievement standards (the 2% assessment). This task may be even more challenging as the target population is less clearly defined for this assessment and will most likely vary from one state to the next.

An Overview of PLDs and their Connection to Learning Progressions

Well-written PLDs capture essential skills, align with state content standards, and represent the highest standard possible for the population assessed. In addition, PLDs should clearly differentiate among levels, building logically across performance levels (e.g., Proficient level should describe appropriately higher skills and understanding than the Basic level) and across grade levels (e.g., grade 4 Proficient should be sufficiently more advanced than grade 3 Proficient). PLDs should represent the knowledge and skills that are actually evaluated by the assessment (e.g., don't include "conducts controlled experiments" in the PLD if your assessment does not allow the students to show whether or not they can perform this skill). Ideally, PLDs will mirror a general learning continuum across and within grades, that is, how learning actually progresses rather than merely how curriculum progresses, even if there is some natural overlapping of skills and concepts in adjacent levels/grades (Hess, 2008).

Specific Considerations for the Alternate Assessments based on Alternate Achievement Standards (AA-AAS)

For the AA-AAS (also known as the 1% assessment), the alternate achievement standard descriptors must be linked to grade-level content standards, but also describe how the content is made accessible to students with significant cognitive disabilities. States often chose to approach this task by describing the types of supports these students needed, the level of independence required, or the degree of generalizability expected. However, these process goals must be integrated directly with the content. The item or product being judged in a typical standard-setting workshop must be examined for both the complexity and appropriateness of the content as well as the process skills applied to content, so the PLDs need to distinguish across levels by content.

While "typical" learning progressions for the population of students with significant cognitive disabilities are understandably more difficult to describe than learning progressions for the general population, they can be seen as "connecting the 'learning zones' of a range of learners within a classroom or grade level. Different instructional materials and strategies will be used by teachers at different points along the learning pathway, but progress is seen as [moving along] a continuum of learning" (Hess, 2007). Consideration of precursor skills of a grain size that allows for measuring progress (e.g., reading high frequency words: progressing from words based on personal experience, to environmental print, sight words, and subject-specific words) and a continuum of less to more complex tasks applied to grade-level content should be represented whenever possible in the PLDs.

The conceptualization of learning progressions for the population of students with significant cognitive disabilities can be informed by the work of the National Alternate Assessment Center(NAAC; Flowers, Browder, Wakeman, & Karvonen, 2007) in which one measure of progress is described as students moving from generalizing their responses across people or settings to generalizing their understanding of concepts.

The latter is a more sophisticated way of demonstrating understanding than simply generalizing across people or settings, in that "students eventually demonstrate responses across more than one task format or application of skills or concepts. In other words, the result of extending grade-level content standards for accessibility to the population of students with significant cognitive disabilities should not result in "collections of discrete learning tasks" that are end points to learning, but rather a potential continuum of learning.

Specific Considerations for Alternate Assessments based on Modified Achievement Standards (AA-MAS)

For the AA-MAS (also known as the 2% assessment), the population itself will drive the PLDs. This population has been defined in the regulations as those students with disabilities whose progress is such that they will not reach grade-level proficiency in the same time frame as other students. Furthermore, the student must have an IEP that includes goals based on the academic content standards for the grade level in which the student is enrolled, and there must be objective evidence demonstrating that current accommodations have not been effective in allowing the student to show grade-level proficiency on the general assessment. However, given that all disability categories are included in this regulation and that many students with disabilities have not had access to grade-level content up until now, there are likely more than 2% of the students in a state who meet this definition. Therefore, the state must add criteria to determine which students will be best served by the assessment they develop based on modified achievement standards.

Some states have focused on the 2% of students whose performance seems to be just above the 1% population while others have focused on those students who are just shy of meeting the general assessment proficiency goal. Still others have selected a population in between these two extremes. Clearly defining the population and understanding the reasons for why the students are not achieving at grade level, is a first step to describing proficient performance for them. An additional challenge with the modified assessment is that the population may include all disabilities types. Conceptualizing learning progressions for them must take into consideration the grain sizes (depth and breadth) of learning targets along the continuum (Gong, 2007), instructional scaffolding that best supports how they learn, and an appropriate level of cognitive challenge for their grade level. These differences will greatly influence the writing of PLDs. There is an even greater need to consider the definition of proficiency for the modified assessments long before standard setting, especially in the design of the assessment. Then, the design of the assessment as well as the definition for proficiency will drive many of the decisions in operationalizing the standard-setting workshop.

Specific Considerations for Integrating All Three Assessments into a Coherent Program

In states that will be developing all three types of PLDs (grade level, modified, and alternate), thought needs to be given to the interrelationship of the performance levels

across these assessments. There is a percentage of students with significant cognitive disabilities who may always need to take an alternate assessment based on alternate achievement standards. At the other extreme, most students with disabilities will never need to take any form of an alternate assessment. However, for the group of students in between—students with disabilities at the upper end of the AA-AAS, the lower end of the general assessment, and all those taking the AA-MAS—movement across these assessments may be somewhat fluid. Of course, we would hope that the direction of the movement would always be towards the more challenging assessment, but the possibility of moving across assessments in either direction needs to be considered.

This paper offers guidance for writing appropriate PLDs for general assessments and alternate assessments based on both alternate and modified achievement standards. Although theoretical in nature, we provide a set of steps that are general to all assessments and then propose modifications for specific assessment types. For example, the paper describes NAEP's method of first writing a generic policy definition of each performance level that can be applied to any grade level or content area (Loomis & Bourque, 2001). This policy definition specifies the level of rigor implied by each performance level. Then, this definition is supplemented with specific content from each subject and grade level to write a PLD for a specific assessment. Process verbs and cognitive complexity are considered and discussed. Finally, we discuss the differences in a PLD used in a standard-setting process and one with additional specificity used to communicate results or drive an assessment design.

This paper focuses on the challenges specific to the population of those students with disabilities who require alternate assessments and provides a description of best practices for developing PLDs to meet the peer review requirements and provide these students with better learning opportunities. Although the standards and assessment peer review should be completed by spring 2008, as of August 1, 2007, several states had not yet met the full requirements for the AA-AAS. In addition, peer review for the AA-MAS will begin in spring 2008. To address the challenges in writing PLDs for these assessments, the paper includes a discussion of the appropriateness of including dimensions such as independence and generalizability. Further, we consider the option of writing PLDs that can account for certain students who may be able to think very abstractly, but struggle with the more concrete concepts. Finally, the paper concludes with examples of PLDs from various states receiving full federal approval as well as hypothetical examples of poorly written descriptors as examples of what to avoid. These examples will compare PLDs for the general assessments, the AA-MAS, and the AA-AAS.

PLDs for General Assessments

Well-written performance level descriptors can become the foundation of an assessment program, driving everything from item development to cut scores to reporting. Much of the emphasis in the media has been on cut scores, but the cut score

is developed in a standard-setting process that depends heavily on the definition for each level of performance.

Performance level descriptors should be written as a multi-step process (as described in Perie, in press).

- First, policymakers determine the number and names of the levels. The terms themselves carry meaning, even without further description; therefore, naming a level is the first step in defining performance. The words chosen to name each level express the values of the policymakers and thus should be selected with care.

- Next, policymakers develop policy definitions specifying the level of rigor intended by each level, regardless of the grade or subject to which it is applied. The policy definition should apply to all subjects and grade levels and should answer the question "How good is good enough?" That is, in general terms, what does it mean to be proficient? This definition should be concise, 1–2 sentences, but because it is the backbone of all further writing, policymakers should carefully consider the wording.

- Finally, content experts and education leaders should supplement these policy definitions with specific statements related to the content standards for each assessment. Typically, content experts start with the policy definitions and expand these definitions in terms of specific knowledge, skills, and abilities required at each level for each subject for each grade. PLDs should be built from test content, either in the form of content standards, test specifications or blueprints, or item specifications. Ideally, they will be developed around a theoretical concept of the learning progressions of the students.

Although guidance exists to help policymakers and practitioners draft PLDs for general assessments, further work is needed. In particular, we explore the idea of including in the descriptors a reflection of the emphasis placed on the various content strands in the assessment. Second, we consider the distinction between increased breadth and depth of knowledge and use learning progressions to show how students develop competencies. Then, we show how policymakers and practitioners can use these distinctions to ensure that the PLDs articulate both within and across grade levels.

Emphasis in PLDs Reflecting Distribution of Emphasis in Test Specifications

One aspect of the alignment studies required of all assessments used under NCLB includes aligning the PLDs with the content standards, so care must be taken to ensure that the PLDs appropriately reflect the content assessed. Currently, most states have demonstrated a satisfactory degree of alignment between content standards and PLDs. However, we would encourage those writing or revising the PLDs to take the additional step of considering the emphasis placed on various content standards that is reflected in the test specifications.

Current literature (e.g., NCTM) suggests that it is appropriate to "shift" the instructional emphasis placed on each strand across grade levels and many states have designed test blueprints for their large-scale assessment to reflect that instructional emphasis. For instance, states typically assess five content strands in mathematics: Number & Operations, Algebra, Geometry, Probability & Statistics, and Measurement. However, in examining the test specifications, we usually see a much greater emphasis placed on items assessing Number & Operations in grade 3 as compared to emphasis on that strand at grade 8. Conversely, a greater proportion of items assess Algebra concepts in grade 8 than in grade 3. Interestingly, we typically see PLDs written with one sentence per content strand, providing no indication as to the relative assessment emphasis given to any particular strand in relation to the others.

For example, in one state (Figure 1), 50% of the score points from the grade 3 math test come from the Number & Operations strand compared to 10% from the Algebra strand. Compare that to grade 8 where 22% of the score comes from Number & Operations and 50% comes from Algebra. When examining descriptors for Proficient (called "Meets the Standard" in this state), we do not see evidence of the differences in relative emphasis of different strands at these grade levels.

Grade 3 Description of Meets the Standard in Mathematics	**Grade 8 Description of Meets the Standard in Mathematics**
The student's overall performance in mathematics meets the standard set for third-grade students. Students performing at this level add and subtract 1-, 2-, and 3-digit numbers and know the basic multiplication and division facts. They demonstrate an understanding of geometric shapes. They can interpret and compare information from charts, tables, and graphs. They can solve various word problems using more than one strategy.	The student's overall performance in mathematics meets the standard set for students in the eighth grade. Students performing at this level generally apply mathematical skills appropriately. They demonstrate evidence of mathematical conceptual understanding and procedural knowledge. Their computation skills are usually accurate. They can use mean, median, mode, and range to describe data and make predictions. They can solve multi-step equations. They can identify and use problem-solving strategies and can communicate their strategies to others.

Figure 1: State PLDs for grades 3 and 8 in mathematics do not appear to reflect the shift of assessment emphasis from the Number & Operations strand at grade 3 to the Algebra strand at grade 8.

Next consider another state (Figure 2), where the greatest assessment emphasis in mathematics at grade 3 is split between Number Operations & Computations and Geometry & Measurement, with 54% of the points on the test coming from these two strands. The focus of the bullets in the description of the proficient student at grade 3

(called "Satisfactory" in this state) appears to be primarily on the two strands emphasized in the test. At grade 8, the strand with the greatest assessment emphasis is Measurement at 27%, placing a slightly greater focus on Measurement at grade 8, than on the other content strands at this grade level. (Algebraic Reasoning = 20%; Number Sense = 18%; Geometry = 18%; Measurement = 27%; Data Analysis & Statistics = 18%). The grade 8 PLD does not depict these differences in emphasis across strands as clearly as the grade 3 PLD does.

Grade 3 Satisfactory:	***Grade 8 Satisfactory:***
Students demonstrate a general understanding of the mathematics knowledge, skills, and processes expected of all students at this grade level. Students scoring at the Satisfactory level typically will: • Recognize and predict patterns. • Understand and model place value (to 4 digits). • Compare and order whole numbers and fractions (halves, thirds, and fourths). • Estimate and solve problems using whole numbers and money (including regrouping). • Apply geometric properties and relationships (including coordinate locations). • Apply measurement concepts (including area and perimeter, length, weight, time, and temperature). • Demonstrate fluency with basic multiplication concepts (including fact families). • Analyze and interpret data in tables, graphs, and charts (including posing questions). • Determine the likelihood of events and be able to predict outcomes. • Solve multi-step story problems.	Students demonstrate a general understanding of the mathematics knowledge, skills, and processes expected of all students at this grade level. Students scoring in the Satisfactory range typically will: • Compare, order, and use different forms of positive and negative rational numbers to solve problems. • Solve single and multi-step algebraic equations and inequalities. • Develop, select, and apply appropriate formulas for given situations. • Classify solid figures and apply the concepts of surface area and volume to real world settings. • Use ratio and proportion to solve problems involving similar geometric figures. • Determine probabilities of uncertain events happening. • Analyze samples and select and apply appropriate charts and graphs to represent collected data.

Figure 2: State PLDs for grades 3 appear to reflect greater assessment emphasis on two strands of mathematics: Number Operations & Computations and Geometry & Measurement. At 8th grade, the relative emphasis appears to be more evenly distributed across mathematics strands, which is not the case.

Because PLDs are used to communicate information to teachers, students, and parents, representing the relative assessment weights/emphases of the different content strands may be helpful in interpreting results, planning instruction and remediation, and promoting best practices in how instructional emphasis *should* shift across grades.

Interaction between Content and Process

In reflecting on the requirements of the PLDs, it is important for content experts to consider typical learning progressions for students. Particularly, think about how student understanding grows in terms of both content and process. For example, in reading instruction and assessment, we typically think of increasing the cognitive demand of the task across either or both of these dimensions: (1) increasing the complexity of the reading passage (Hess & Biggam, 2004); and/or (2) increasing the depth of knowledge/DOK (Webb, 2002) required of the assessment task. For example, regardless of the reading level of text, we might expect a student to be able to locate or recall information explicitly presented in the text (e.g., identify characters, setting, details) To comprehend at a level beyond simple recall (e.g., identify or summarize the main idea), requires that students use basic reasoning to put ideas together such as when predicting a logical outcome, summarizing a problem and solution, and distinguishing between fact and opinion. Next, student learning may move on to the use of strategic thinking and more complex reasoning, such as comparing or connecting ideas across texts, supporting inferences with text-based evidence, making inferences about implicitly stated ideas, and analyzing the author's use of literary devices. Finally, the most advanced reading skills will be seen as evidence of extended reasoning, such as analyzing multiple works by the same author, synthesizing information from multiple sources to draw broader conclusions, and evaluating the relevancy, accuracy, and completeness of specific information.

While this progression of increasing depth of knowledge could translate directly into PLDs, it is also important to cross this dimension with the content dimension. That is, any of these tasks could be more or less difficult depending on the complexity of the text (or context) involved. When writing PLDs we need to consider whether we place greater value on students showing a greater depth of knowledge with an easier (e.g., less abstract) text or less depth of knowledge on a more complex piece of (or set of) text(s). To generalize this idea, we need to consider the interaction between content and process. In the example given, the content is the level and type of reading passage and the process is how the student works with the information. However, similar concepts could be applied to any subject. We need to consider how student learning "grows," both within a year and across years. That is, does a student demonstrate progress by staying at the same processing level but increasing the complexity of the texts they read? Does a student demonstrate progress by continuing to work with the same level of texts but increasing the level of skill applied to those texts? Both? How do they interact? Thinking about how an individual student could learn and grow within and across years will help to determine how the PLDs should be related both within and across years.

For example, consider how a student who is Proficient at grade 3 continues to show progress and how that might be reflected in the PLDs. Would you expect that student to first learn the material described in the Advanced PLD at grade 3, and then move to Basic at grade 4, and finally to Proficient at grade 4 in one year? Or is proficiency more

related to skill, such that the student stays at a Proficient level throughout the year moving only from grade 3 content to grade 4 content. Next, think about this same question for a student who is below Proficient — do they need to reach proficiency on the lower grade level material before they can reach Proficient on the current grade level material?

Current PLDs for grade-level assessments should be reviewed with these questions in mind to ensure coherence across performance levels and grade levels within a content area.

Differences in Writing PLDs for the AA-AAS and AA-MAS

PLDs can have a large influence, not just in interpreting scores, but in influencing instruction and teacher expectations (e.g., what students CAN do versus what they CAN'T do) and planning instruction. Consider how the values reflected in your PLDs relate to your content standards, balancing between the knowledge in each content strand and the development of skills. Think holistically about how a student moves from one performance level to the next, one grade to the next, and one assessment group[1] to the next.

PLDs for the AA-AAS

States have been working to develop PLDs for the AA-AAS for the past several years. Under the peer review guidance, critical element 2.5 highlights the need to ensure "alignment between its academic content standards and the alternate academic achievement standards" (USED, 2004). This alignment is first demonstrated in the development of the PLDs.

As described in Perie (2007), there are optional aspects of writing PLDs that states can use if it fits within their conceptual model for their alternate assessment program. For example, PLDs can be written for a grade span rather than a grade level. That is, if the content is sufficiently similar from one grade to the next, states may write one descriptor to cover the performance of up to three grade levels in the grade span (e.g., grades 3–5). However, they must take care to demonstrate that students may still progress across grade levels within a grade span. For instance, consider a scenario where a student is assessed using the same skills checklist with the same requirement for Proficient across all three grade levels. If that student is able to perform well on 80% of the tasks at grade 3, well above the level of Proficient for that grade span, how will the state ensure that the student will be exposed to appropriately rigorous — and perhaps new — content in grades 4 and 5?

Another option is to adopt more than one set of PLDs or multiple achievement standards. At least one state, Pennsylvania, differentiates PLDs on the basis of three levels of symbolic language use. Students who are communicating at pre- and emerging

[1] "Assessment groups" are defined in this paper as the AA-AAS, the AA-MAS and the general assessment.

symbolic levels of language development are judged against different achievement standards than students who are symbolic communicators. Another state, Kentucky, has two sets of achievement standards, one for students communicating at a pre-symbolic level (e.g., using cries or body movements to communicate) and one for students who are using pictures and objects to augment speech in addition to the symbolic communicators (Towles-Reeves, Kearns, Kleinert & Kleinert, in press). Caution is warranted here in developing multiple levels of achievement standards to require all to link to academic content standards and ensure that students continue to develop symbolic language. Content standards can be used successfully to facilitate language development for students but the primary purpose is to encourage language development. Therefore the levels of symbolic language should not be viewed as categorical or static. As such, bridges in PLD's that allow movement across achievement standards, incentives for increasing a student's symbolic language, or targeted technical assistance based on assessment results may be needed to encourage progress in the development of symbolic language.

Naming Performance Levels

In terms of naming the performance levels, most states use the same names for the alternate assessment as they did for their general assessment. However, other states have created new names. For example, Arizona named their levels according to the level of independent functioning of the student: Emergent, Supported, Functional, Independent, with "Functional" representing the equivalent of Proficient. Some states have avoided labeling the levels and simply refer to them as Level 1, Level 2, Level 3, and Level 4 (e.g., South Carolina and Washington).

Massachusetts has a unique approach. They assembled a task force that recommended that performance levels be identical to performance levels on the general assessment (the Massachusetts Comprehensive Assessment System or MCAS), but that the lowest performance level, called "Warning/Failing at Grade 10" for tested students, would be sub-divided into three distinct levels in order to provide more meaningful descriptions of performance at these lower levels (Wiener, 2002). Figure 3 illustrates the performance levels and definitions used by Massachusetts to report assessment results on the general and the alternate assessments, and the relationship between the two reporting scales.

It is clear from the Massachusetts example, that this state has defined a relationship between the AA-AAS and the general assessment that leaves no room for an AA-MAS. At the present time, Massachusetts is not developing a modified assessment as to do so would not fit into their theoretical model.

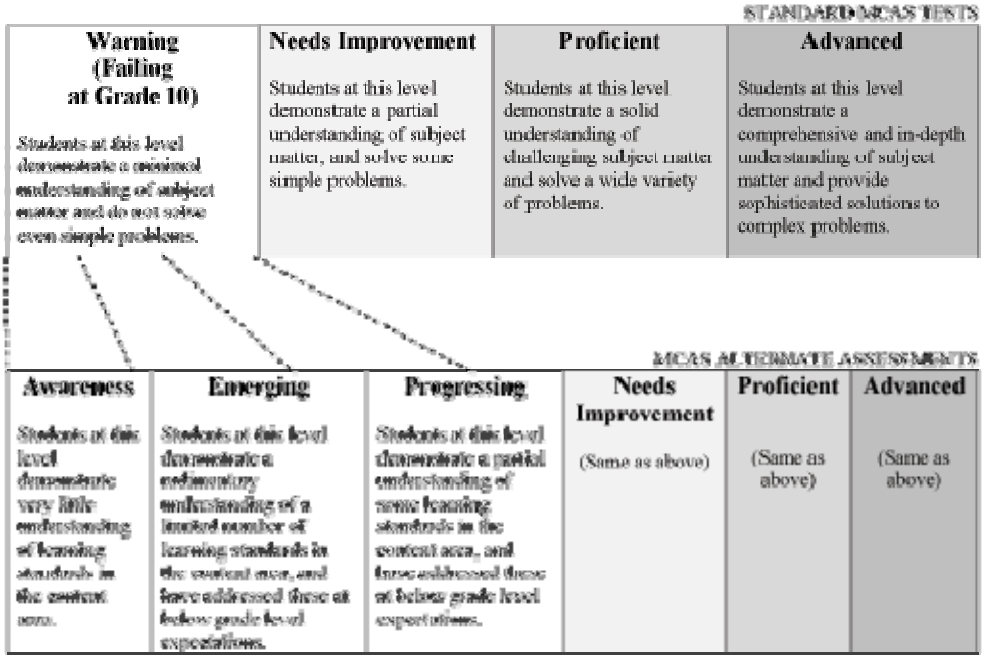

Figure 3. MCAS Performance Levels link the general assessment PLDs to the AA-AAS PLDs

Writing Policy Definitions

As with general assessments, the next step in creating PLDs is to write generic descriptions, or policy definitions, for each performance level. Once the number and names of the levels have been determined, descriptions of these levels can be written. For example, one state created the following policy definitions for each level:

AA-AAS Policy Definitions

E = Emergent
Student is beginning to use skill in one context with extensive support. Student cannot perform the skill without assistance. Student initiates any portion of the skill sequence but needs physical/verbal assistance to complete task.

S = Supported
Student occasionally uses the skill in one or more contexts with physical/verbal cues. Student occasionally performs the skill accurately. Student demonstrates the skill from 1–90% of the time with physical/verbal cues.

F = Functional (meaning Proficient)
Student frequently uses the skill in one or more contexts with limited cues. Student frequently performs the skill accurately. Student demonstrates the skill from 91–100% of the time with physical/verbal cues or from 1–90% of the time with natural cues.

I = Independent
Student performs the skill accurately in several contexts with natural cues. Student demonstrates the skill from 91–100% of the time with natural cues.

There has been a temptation to vary the descriptors simply in terms of the level of complexity and/or support needed. While these are important components, it is also important to consider the interaction between the content taught and the level of support needed to demonstrate learning. For instance, a proficient student at grade 3 reading may be able to identify the main character in a text with minimal support, but may need much more support to use supporting evidence from the text to explain or interpret that character's actions. The same consideration should be given to the interaction between complexity of concepts and performance expected. Transfer or generalizability of concepts also interacts with the specific content standards. For instance, the concept of main idea can range from identifying the topic sentence in a five-sentence paragraph to identifying the central idea presented in a short newspaper article. These considerations will come into play when developing the full performance level descriptors for each grade or grade span for each subject.

Participants

Although the idea of writing the full PLD for the AA-AAS is similar to writing full PLDs for the general assessments, there are several key distinctions. First of all, the committee appointed to draft the descriptors will need to be comprised of both general and special educators in addition to other policymakers or stakeholders with expertise to contribute to the process. Having general education teachers with content expertise and special education teachers with deep knowledge of the unique learning needs of students with disabilities is critical in that the PLDs must reflect both a strong linkage to grade-level content standards and the unique learning needs of this particular population. Again, a consideration of how learning progresses for students in this population, as well as the learning continuum that links to grade-level content standards is important.

Training

Because content experts (e.g., classroom teachers, literacy and math coaches) are an integral part of the process, but may not have the necessary background to understand this population, it will be important to spend some time in the PLD writing workshop discussing the characteristics of the population. The content experts need information about who is included in the population assessed by the AA-AAS, the range of disabilities they may have, and the implications for their performance. For example, all participants need to be briefed on how these students communicate (e.g., pre-symbolic and symbolic; nonverbally) and the level of support needed. Those on the panel who have not previously worked with students with significant cognitive disabilities will need an orientation on how these students can be supported in their learning; and they should understand what the research says about how these students develop competence in the domains of reading and mathematics (cf., Kleinert & Kearns, 2001).

In addition, all participants will need a working knowledge of the grade-level content standards, the extended standards (if they exist), and the requirements of the test. A discussion about the types of accommodations allowed (if relevant) and different ways in which the students may access the curriculum is also helpful. Viewing examples of

work from students with a range of disabilities would also be a useful step in helping participants fully understand what students with various cognitive disabilities can and should be expected to learn. A sample portfolio can demonstrate the types of evidence students produce. A videotape of students taking a task-based performance test or performing skills on a checklist will give the panel a visual illustration of how these students might demonstrate what they know and can do.

Once the panelists have been trained on the learning characteristics of the population, the extended content standards, and test requirements, the procedures for writing full PLDs remain the same as for writing PLDs for the general assessment. (See Perie, 2008 for detailed instructions.)

PLDs for the AA-MAS

As mentioned earlier, states have some flexibility in determining the population to be assessed by the AA-MAS. According to the non-regulatory guidance (USED, 2007) AA-MAS is intended for "a small group of students whose disability has precluded them from achieving grade-level proficiency and whose progress is such that they will not reach grade-level proficiency in the same time frame as other students." These students must have an IEP and they must be receiving instruction in grade-level content. However, since there is likely more than 2% of the students who meet this definition (due, in part, to a previous lack of exposure to grade-level content), states must clearly articulate the targeted population. Some states are targeting students whose performance is just above those students with significant cognitive disabilities to take the AA-MAS. Other states are targeting students with IEPs whose performance puts them much closer to their grade-level peers. Understanding the targeted population will have a large influence on the content of the PLDs.

Defining the Population and their Potential Barriers

The first step to considering proficient performance on the AA-MAS is to define the population and provide a rationale for that definition. For example, some states are only developing modified assessments beginning at grade 5, because they are including in their definition a requirement that a student must have scored at the lowest performance level on the general assessment for two years in a row. These persistently low performers may be encountering barriers to demonstrating proficiency on the general assessment, even with appropriate accommodations. The AA-MAS then will be developed with the goal of removing these barriers.

Work must be done to better understand these potential barriers, however. For example, one state reviewed assessment data to identify a population of students with IEPs who scored at the lowest performance level on the general assessment three years in a row. They then examined the test items at two grade levels in reading and mathematics from two perspectives: 1) a technical review that analyzed items this population was able to answer correctly and seemed correlated with overall performance and other items that did not appear to function well for these students;

and 2) a cognitive review in which content experts simultaneously examined the same items to determine potential barriers to demonstrating proficiency on these test items. Findings of the technical review were then triangulated with findings from the cognitive review in order to design and conduct a pilot study with modified or scaffolded items for the 2% population.

In examining the items, the cognitive review asked questions such as:

- What skills and concepts are tested in the items and how closely do they align with the grade-level content standards?
- Do the items tend to focus on conceptual understanding, fact-based content, or processes/skills?
- What is the depth of skill or reasoning required by the item (e.g., locate information vs. drawing conclusions; computation vs. apply concept in new context)?
- What is the "closeness" of distracters to each other? Is it easy to eliminate some distracters because they are so "far" from the correct response?
- What is the vocabulary load within items (not the vocabulary term being tested)?
- What is the complexity or abstractness of ideas of language presented (e.g., use of figurative language; theme vs. main idea)?
- For the reading items, consideration was also given to the genres, the text structures, and length of the text passages.
- For the mathematics items, it was also noted whether they were single-step or multi-step problems, supported in some way by graphics, required extensive reading, etc.

Understanding the performance of this population on these items should help to both guide the appropriate modification of the items and determine what "proficient" performance means.

One approach to modifications that would have a heavy influence on the PLDs is the use of scaffolding strategies embedded in test items on the AA-MAS. (Hess & McDivitt, 2008; Johnstone, Liu, Altman, & Thurlow, 2007; Seidenberg, 1989). That is, a proficient student on the modified assessment may have a similar set of knowledge and skills as the proficient student on the general assessment, but may require more supports (e.g., less vocabulary load in the test item, use of graphic organizers to organize information before solving a problem) to demonstrate that knowledge. For example, one student may be able to answer a broader/more generalized question, such as about the author's purpose or theme, immediately after reading a longer text passage. Another student may need to first consider questions more directly connected to aspects of the same text (e.g., details about the main events, the conflict, the resolution) before being able to make an interpretive statement about the author's purpose or theme. Ultimately, the answers may be equally correct, but one student is able to produce a purpose statement without any supporting direction, while the other student needs to be directed toward the answer through a stepwise progression. Note that in neither

situation is the instructor or prior test items providing the correct answer, only a way to think about determining the answer.

Steps for Drafting the PLDs for the AA-MAS

Again, in developing PLDs for the AA-MAS, it is important to think about movement along content-specific learning progressions within and across grades. As mentioned previously, the PLDs should be written using a thoughtful method that shows how a student moves through the levels within a grade and across the grade levels. In addition, those writing the PLDs will need to consider the transition between the AA-AAS to the AA-MAS to the general assessment. Should there be a clear link, similar to the example from Massachusets that linked the general assessment to the alternate assessment? Or an even more direct link, such as one where the description for Advanced on the AA-MAS matches exactly the description for Basic on the general assessment? Policymakers, special educators, and content experts should consider closely the degree of linkage they expect to see on the three assessment groups. If policy is going to be enacted that affects participation, that should be made clear before PLDs are drafted. For example, if a rule is created that a student who scores Proficient or above on the AA-MAS two years in a row must then take the general assessment, that could affect the rigor at which the Proficient PLD is written.

To draft the modified PLDs, we recommend using the following procedures:

1. Bring together a committee of content experts (e.g., classroom teachers and curriculum leaders) and special education teachers.
    - Content experts should make up about 2/3rd of the committee.
    - Approximately 5–8 participants are needed per subject area, but if you're developing PLDs for multiple grade levels, consider inviting more participants and splitting them into teams
2. Start with background information on this population as you have defined it (based on both disaggregated assessment data and teacher perceptions and insights from working with them)
    - Discuss what you have learned about this population
    - Present examples of items this population does well on and items they struggle with (using a set of criteria, such as an item review criteria, depth-of-knowledge, vocabulary or reading load, graphics, spacing, etc.)
        - Be sure to allow for the possibility that not all students in this population may perform similarly
        - Be open to the possibility that some students may struggle with concrete skills but be able to think very abstractly
    - Focus on the grade-level content standards
    - Discuss interactions of process and content (e.g., is this a routine application of skill or transfer of known skill to a new context?)
    - Discuss idea of what it takes to move both across performance levels and across grade levels

    - Are the knowledge and skills required of Proficient on the MAS the same as on the general assessment, but some scaffolding is needed, or are the knowledge and skills different?
    - If they are different, is the content different or the processes? (e.g., both can make inferences at the Proficient level but the general assessment requires that the inferences are made in a more complex context than the MAS, or GLAS can make inferences, while MAS can only draw basic conclusions from concepts presented directly)
  - Think about transition from this assessment to the general assessment – how are they linked?
3. Focus first on writing the Proficient PLD
4. Ask the participants to brainstorm what a student should know regarding each content strand (or substrand/benchmark/indicator) in order to be proficient
5. Keep a list of the ideas in bullet format
6. Move to Basic and write statements for that level
   - The statements should be parallel to a degree, although descriptions of all skills and content might not be included at all performance levels below Proficient
   - Consider whether a student who is Proficient understands a different breadth/depth of content, a different level of processes, has the ability to apply what they know to different contexts. i.e., what makes that student more advanced?
7. Moved to Advanced and follow the same process
8. Continue with any other levels
9. Now consider the adjacent grade(s)
   - How does Advanced in the prior grade relate to Below Basic/ Basic/ Proficient in the subsequent grade?
   - How do you see students moving across grades?
   - How does Proficient in one grade compare to Proficient in the next?
10. Final format could be the bulleted list, or you could rewrite that into a descriptive paragraph.
11. Whether working in one or multiple groups, be sure the process ends with a summary of all PLDs across all levels and applicable grades.
    - Can you see a clear progression?
    - Will this be translatable to instruction?

Examples

Provided here are examples of PLDs pulled from various states receiving full federal approval as well as hypothetical examples of poorly written descriptors as illustrations of what to avoid. These examples show the linkage among the PLDs for the general assessments, the 1% assessments, and the 2% assessments.

Example 1: Grade-Level Achievement Level Descriptor that keeps the concepts and skills the same at all performance levels and only makes quantitative distinctions across performance levels

This PLD example implies that all quantitative distinctions apply to all skills and concepts, which may not be the case.

Below Basic	Basic	Proficient	Advanced
Students performing at the below basic level show minimal mathematical conceptual understanding and procedural and analytic skills. They rarely use problem-solving strategies and have limited success when performing the following activities:	Students performing at the basic level show some evidence of mathematical conceptual understanding and procedural and analytic skills. They demonstrate limited use of problem-solving strategies and have some success when performing the following activities:	Students performing at the proficient level generally show mathematical conceptual understanding and procedural and analytic skills. They use a variety of problem-solving strategies and usually have success performing the following activities:	Students performing at the advanced level usually show a high level of mathematical conceptual understanding and procedural and analytic skills. They demonstrate flexibility by using a variety of problem-solving strategies and consistently perform the following activities successfully:
– Recognize, describe, and extend patterns. – Make connections among mathematical ideas. – Apply concepts, skills, strategies, and tools/technology to solve simple problems. – Understand place value to six digits and decimals to hundredths. – Use addition and subtraction of whole numbers to estimate and to solve problems. – Multiply and divide 2- and 3-digit numbers. – Compare fractions and decimals. – Apply geometric (spatial reasoning) and measurement concepts using customary and metric units of measure (including estimation). – Analyze and interpret data in graphs. – Determine probabilities – Use basic algebraic concepts and processes			

Example 2: Grade Level Achievement Level Descriptor that distinguishes performance through "progressing" skills and conceptual understanding *in addition to quantitative distinctions*

This PLD example identifies distinctions that "typically" apply to specific skills and concepts at different performance levels.

Below Basic	Basic	Proficient	Advanced
The student at this level demonstrates limited evidence of mathematical conceptual understanding and procedural knowledge. The student demonstrates limited or no ability to use information to make connections among mathematical ideas, and rarely can transfer learning to new problem contexts. The student can add and subtract 2-digit numbers without regrouping, but has limited success when multiple steps are required. The student demonstrates only a beginning understanding of multiplication, division, and fractional parts. The student recognizes basic geometric shapes, but lacks knowledge of the properties of the polygons. The student can retrieve basic information from simple charts, tables and graphs to answer questions.	The student at this level demonstrates a concrete understanding of basic mathematical procedures and shows some conceptual understanding when connecting mathematical ideas. The student applies mathematical skills and knowledge to some real-world situations. The student understands basic arithmetic operations and uses additive reasoning for most problem solving. The student can add and subtract 2- and 3-digit numbers, knows basic multiplication and division facts, and can compare and order fractions and decimals. The student can solve simple routine problems and can apply concepts, skills, and strategies using multiple steps. The student can classify and compare two- and three-dimensional figures based on their properties; understands the concept of area; and uses visual representations to determine the area of a figure. The student can retrieve and use the information presented in a simple chart, table, or graph in routine operations.	The student at this level demonstrates evidence of conceptual understanding, and of procedural and some analytic skills. The student applies mathematical skills and knowledge to theoretical and real-world situations to makes connections within and among the mathematical ideas. The student uses basic arithmetic operations in computation with whole numbers and common fractions and decimals. The student uses multiplicative reasoning when appropriate for problem solving or justifying a solution. The student understands and applies basic geometric properties and spatial relationships (e.g., finding area and perimeter); and applies the principles of similarity, symmetry, and coordinate geometry. The student uses and interprets charts, tables and graphs (e.g., identifies trends). The student uses data to determine probabilities; and uses basic algebraic concepts and processes.	In addition to demonstrating evidence of proficient performance, the student at this level demonstrates consistent evidence of conceptual understanding and of procedural and analytic skills. The student uses abstract thinking and provides explanations and justifications that are consistently clear and thorough. Students flexibly use both inductive and deductive reasoning. They continue to develop more formal and abstract notions of problem solving, communication, mathematical connections and reasoning, and are able to demonstrate this by solving a wider range of problems and by connecting mathematics to a greater variety of situations in other content areas and in life.

Example 3: Modified Achievement Level Descriptor that varies from the Grade-Level PLD only by adding *a clause about the modifications* and distinguishes across levels using consistency and accuracy

Below Basic	Basic	Proficient	Advanced
When working on grade-level mathematics based on modified achievement students (*including reduced cognitive load, increased visual representation, and simplified reading and sentence structure*) a student scoring at the below basic level shows inconsistent performance with inaccurate results with the following mathematical activities:	When working on grade-level mathematics based on modified achievement students (*including reduced cognitive load, increased visual representation, and simplified reading and sentence structure*) a student scoring at the basic level shows some consistency and is sometimes accurate with the following mathematical activities:	When working on grade-level mathematics based on modified achievement students (*including reduced cognitive load, increased visual representation, and simplified reading and sentence structure*) a student scoring at the proficient level often shows consistency and performs accurately with the following mathematical activities:	When working on grade-level mathematics based on modified achievement students (*including reduced cognitive load, increased visual representation, and simplified reading and sentence structure*) a student scoring at the advanced level consistently and is always accurate with the following mathematical activities:

- Recognize, describe, and extend patterns.
- Make connections among mathematical ideas.
- Apply concepts, skills, strategies, and tools/technology to solve simple problems.
- Understand place value to six digits and decimals to hundredths.
- Use addition and subtraction of whole numbers to estimate and to solve problems.
- Multiply and divide 2- and 3-digit numbers.
- Compare fractions and decimals.
- Apply geometric (spatial reasoning) and measurement concepts using customary and metric units of measure (including estimation).
- Analyze and interpret data in graphs.
- Determine probabilities
- Use basic algebraic concepts and processes

Example 4: Modified Achievement Level Descriptor that varies from the Grade-Level PLD by describing modifications to the scope of content (depth or breadth), application of skills (and in some cases reduced cognitive complexity), and scaffolding typically provided in the assessment

Below Basic	Basic	Proficient	Advanced
The student at this level demonstrates limited evidence of mathematical conceptual understanding and procedural knowledge. The student applies basic arithmetic operations when they are presented in familiar/routine formats or when minimal reading is required (e.g., add and subtract 2-digit numbers without regrouping, add fractions with common denominators) The student uses visuals, enhanced graphics, and/or simple examples to solve simple problems or recognize basic geometric properties. The student can retrieve basic information presented in a simple chart, table, or graph to answer questions.	The student at this level demonstrates an understanding of basic mathematical procedures. The student applies basic arithmetic operations when they are presented in familiar/routine formats or when minimal reading is required (e.g., add and subtract 2- and 3-digit numbers, compare and order fractions and decimals using number lines or spatial models). The student uses visuals, enhanced graphics, and/or simple examples to solve simple problems with multiple steps (e.g., classify or compare two- and three-dimensional figures based on their properties; uses visual representations to determine the area of a figure). The student can retrieve the information presented in a simple chart, table, or graph and use it to solve a problem using basic operations. The student applies basic algebraic concepts and processes using visuals and graphics.	The student at this level demonstrates a basic understanding of mathematical procedures and shows some conceptual understanding when connecting mathematical ideas. The student applies arithmetic operations when they are presented in familiar/routine formats or when minimal reading is required (e.g., add and subtract 2- and 3-digit numbers, do basic operations with fractions and decimals). The student uses visuals, enhanced graphics, and/or simple examples to apply basic geometric properties and spatial relationships when solving routine problems (e.g., finding area or perimeter, identifying lines of symmetry, plotting or locating coordinates on a grid) The student uses charts, tables and graphs to apply information to routine problems and can explain the solution, approach, interpretation. When presented in simplified or familiar formats, the student uses data to determine probabilities & outcomes. The student uses basic algebraic concepts and processes.	In addition to demonstrating evidence of proficient performance, the student at this level consistently demonstrates evidence of some analytic and reasoning skills when providing explanations and justifications for solutions or approaches. There is evidence of abstract thinking when the student applies mathematical skills and knowledge to new contexts or real-world situations.

Example 5: An Alternate Achievement Level Descriptor that provides distinctions between levels, but provides no information to the teacher, parent, or student about skills and concepts learned

Below Basic: Students at this level demonstrate 0% to 39% mastery of the skills tested in Mathematics.

Basic: Students at this level demonstrate 40% to 59% mastery of the skills tested in Mathematics.

Proficient: Students at this level demonstrate 60% to 79% mastery of the skills tested in Mathematics.

Advanced: Students at this level demonstrate 80% or greater mastery of the skills tested in Mathematics.

Example 6: An Alternate Achievement Level Descriptor that differs across levels *by degree of understanding, fidelity to the standard,* and *level of support*

Below Basic
Student has a minimal understanding of the concepts contained within the strands of Numbers and Operations, Geometry, Algebra, Measurement, and Data Analysis. Student work may be loosely connected to the strands. Student likely requires extensive verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.

Basic
Student has a fundamental understanding of the concepts contained within the strands of Numbers and Operations, Geometry, Algebra, Measurement, and Data Analysis. Student work may be somewhat connected to the strands. Student likely requires frequent verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge and/or application of these concepts.

Proficient
Student has a sound understanding of the concepts contained within the strands of Numbers and Operations, Geometry, Algebra, Measurement, and Data Analysis. Student work may be connected to the strands and demonstrate application. Student likely requires some verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.

Advanced
Student has a strong understanding of the concepts contained within the strands of Numbers and Operations, Geometry, Algebra, Measurement, and Data Analysis. Student work may be closely connected to the strands and demonstrate strong application. Student likely requires minimal verbal, visual and/or physical task-specific assistance in order to demonstrate knowledge of these concepts.

Example 7: An Alternate Achievement Level Descriptor that varies in terms of *degree of understanding*, *support*, and *content* (skills and concepts) across levels

Below Basic
The student demonstrates little or no understanding of the math skills/concepts. They always require supports to gain access to grade level content and show no independence. Inaccuracies interfere with the conceptual understanding. The student demonstrates this by:
- inaccurate use of details (e.g., numbers, measurement, data, etc.)
- inaccurate or no use of math vocabulary (e.g., add, measure, inches, data, function, etc..)

Basic
The student demonstrates basic understanding of the specified math skills/concepts. Inaccuracies may interfere with or limit the conceptual understanding. They usually require supports to gain access to grade level content and still need some prompting but are beginning to work independently. The student demonstrates some understanding without applying the skills/concepts to an authentic task and/or environment by:
- solving a problem (e.g., computation problems, measuring, identifying shapes, etc.)
- using math vocabulary (e.g., add, clock, length, graph, input, output, etc.)
- using a model or explanation to demonstrate a concept or solve a problem (e.g., demonstrate with manipulative or chart that addition and/or multiplication can be completed in any order, explain how length can be determined by using a ruler; complete a chart showing 2D shapes, the properties of each, and match to everyday signs; create a graph using data and provide information using the graph; completing a function table; etc.)

Proficient
The student demonstrates an independent and accurate understanding of the specified math skills/concepts. They require supports to gain access to grade level content but require little prompting and frequently show independence. Occasional inaccuracies, which do not interfere with conceptual understanding, may be present. The student demonstrates the ability to apply the skills/concepts to an authentic task and/or environment by:
- solving a real world problem (e.g., add scores for a board game and checking by adding in the other direction; add the time needed to get ready for a party and to drive to the party in order to plan when to start getting ready; use geometric shapes to complete an art project; use data to choose the vegetable with the most vitamins; use a function table to see how many laps would be walked in one week if one lap was added each day, etc.)
- applying math skill/concept in the natural environment (e.g., store, home, art class, gym class, etc.) to solve a problem
- using relevant details (e.g., uses minutes and hours; uses number of sides; uses graphed data; uses input and output data, etc.)
- using math vocabulary (e.g., add, clock, length, graph, input, output, etc.)
- using a model or explanation to demonstrate a concept or solve a problem (e.g., demonstrate with manipulative or chart that addition and/or multiplication can be completed in any order, explain how length can be determined by using a ruler; complete a chart showing 2D shapes, the properties of each, and match to everyday signs; create a graph using data and provide information using the graph; completing a function table; etc.)

Advanced
The student exceeds the expectations for demonstrating an independent and accurate understanding of the specified math skills/concepts. They rarely require prompting and operate mostly independently. The student demonstrates the ability to apply the skills/concepts to an authentic task and/or environment with analysis and reflection by:

- solving a real world problem (e.g., add scores for a board game and checking by adding in the other direction; add the time needed to get ready for a party and to drive to the party in order to plan when to start getting ready; use geometric shapes to complete an art project; use data to choose the vegetable with the most vitamins; use a function table to see how many laps would be walked in one week if one lap was added each day, etc.)
- applying math skill/concept in the natural environment (e.g., store, home, art class, gym class, etc.) to solve a problem
- communicating an in-depth explanation that analyzes or reflects on the problem (e.g., illustrate with a model that the area of a room that is 3X4 is the same as one that is 4X3 and explain the why; develop a timeline for getting somewhere on time; reflect on how repeating shapes can turn into a piece of art; complete a function table and explain the rule and how it would change with a different repeating action, etc.)

Conclusion

Performance level descriptors can be powerful tools that provide instructional targets for students, parents, and teachers. In assessments for students with disabilities, the PLDs can serve as a mechanism for ensuring these students are given every opportunity to learn grade-level curriculum. Understanding the pathways of student learning can help us, as a field, develop targets that are logical and appropriately challenging.

It is important to consider the larger picture when writing performance level descriptors. Understanding how one level relates to another, one grade relates to another, and one assessment type relates to another will help ensure a well-aligned comprehensive assessment program. Likewise ensuring an appropriate link between descriptors and grade-level content standards also will help ensure that the assessments properly inform curriculum and instruction.

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