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Universal Design of Alternate Assessment on Alternate Achievement Standards: Concepts,

Issues and Strategies

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## Universal Design of Alternate Assessment on Alternate Achievement Standards: Concepts, Issues and Strategies

### *Introduction*

The application of universal design in education is traditionally considered in the delivery of curriculum and instruction; the application of universal design to assessment has received considerably less attention. However, interest in applications of universal design to assessment is growing, especially with the federal requirements for the inclusion of all students, including students with disabilities, in large-scale educational assessments under both the No Child Left Behind Act of 2001 (NCLB) and the Individuals with Disabilities Education Improvement Act (IDEIA 2004).

Regarding the IDEIA requirements, universal design is addressed as follows:

“the state educational agency (or in the case of a district-wide assessment, the local educational agency) shall, to the extent feasible, use universal design principals in developing and administering any assessments under this paragraph” (IDEIA- PL 108-446, Section 612.16E, 2004)

References to universal design are not limited to IDEIA. Indeed, universal design is referenced in more recent information published by the U.S. Department of Education (USDOE) regarding federal expectations for design of state assessment systems: “It is important to note that as States continue to improve alignment between standards and assessments, the use of *universal design principles* holds great promise for designing and aligning standards, curriculum, instructional materials, and strategies. Assessments that are designed to be valid and accessible for the widest range of students may help all students struggling to achieve, particularly students with cognitive

disabilities, and would reduce the need for accommodations.” (Standards and Assessments Peer Review Guidance, U.S.D.O.E, April 28, 2004, pg. 51).

As a result of this Peer Review Guidance (2004) for NCLB and the requirements of IDEIA, the National Alternate Assessment Center (NAAC) is considering the ways in which alternate assessments on alternate achievement standards (AAAAS) and alternate assessments on grade-level achievement standards (AAGLS) can incorporate the concept of universal design in their test specifications, design and administration of the assessments, as well as the subsequent effect of universally designed assessments on student learning.

We intend in this paper to explore the concept of universal design through its origins in architecture and through its application in measurement to both types of alternate assessments. Our research to practice focus will provide useful, concrete strategies for appropriately using universal design. These strategies will enable practitioners to develop high quality accessible instruction and assessments that significantly reduce response, engagement, and expression biases that have made it difficult for learners with disabilities to access the assessment content.

This paper will

- describe the application of the concept of universal design to alternate assessments;
- provide examples of alternate assessment (i.e., alternate assessments on alternate achievement standards, including portfolios, performance events, and checklists) that incorporate the concepts of universal design;
- discuss the implications for instruction, as assessment and instruction should be explicitly linked (Kleinert & Kearns, 2004); and
- consider the use of technology-based options for alternate assessment delivery.

### *Review of the Literature*

The origins of the term “universal design” are from the field of architecture, or Universal Design for Living (Center for Universal Design, 1997). This form of universal design means “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design” (Mace, R., et al., North Carolina State University, 1997). In this way, the design of physical environments has increased accessibility and flexibility for all ages and abilities (Bremer, Clapper, Hitchcock, Hall, & Kachgal, 2002). When applying the concepts of Universal Design to physical space, architects create structures intended from initial conception to be used by all individuals. Access features for entry to buildings incorporate such features as ramps and automatic doors. These represent examples of the application of universal design in the building of new structures.

In applications of universal design concepts to education, Universal Design for Learning (UDL) (Rose & Meyer, 2002) leveraged innovation and technology to help educators teach all learners. Recent research in neuroscience shows that human brains process information differently, and the way we learn is as individual. In its research, CAST has identified three primary UDL principles to help educators customize teaching for individual differences in each of three brain networks. A universally-designed curriculum offers the following principles:

- (a) multiple means of *representation*, to allow for a range of ways to access and acquire information and knowledge;
- (b) multiple means of *expression*, which allow learners varying pathways for action and demonstrating what they know; and
- (c) multiple means of *engagement*, to address learner interest as well as provide appropriate levels of challenge and motivation (Rose, Meyer, & Hitchcock, 2005).

Learning, as identified by CAST, includes instruction and assessment. These principles applied to instruction serve to increase student opportunities to acquire knowledge and skills within a variety of content domains, including reading and mathematics. Application of UDL components (Rose & Meyer, 2002) will increase flexibility in the representation, action and expression, and engagement of instruction. Learner access to the content is thus improved and acquisition can occur more readily.

The National Center for Education Outcomes (NCEO) also addresses the idea of universal design as applied to large-scale standards-based assessments for the general population. Thompson and Thurlow (2002) referred to an “Inclusive Assessment Population” and stated that tests designed for state, district, or school accountability must require the participation of all students regardless of their “cognitive abilities, cultural or linguistic backgrounds except those students in alternate assessments” (p.8). Thompson and Thurlow defined seven elements of universally designed tests which apply primarily to large-scale general assessments. These elements included: a) inclusive assessment population, b) precisely defined constructs, c) accessible non-biased items, d) amenable to accommodations, e) clear intuitive instructions, f) maximum readability, and g) legibility. The ultimate result in the application of these elements to tests would result in maximizing the participation of students with disabilities in the general assessment. In response to these characteristics, measurement experts caution that much work needs to be done to empirically validate the effects of universal design on state assessments (Marion & Gong, 2005). Indeed, while there are limited data thus far regarding any application of universal design to general assessments (Dolan & Hall, 2001; Thurlow & Thompson, 2002), data on the application of universal design to *alternate* assessments on alternate achievement standards are even more limited..

There are a small number of studies in which the principles of Universal Design for Learning have been incorporated into assessment. The only source of data on the incorporation of UDL into alternate assessments on alternate achievement standards was in the development of two alternate assessments on alternate achievement standards prototypes under the Colorado Enhanced Assessment Initiative (2004). Two types of alternate assessments were designed: one a portfolio and the other a performance event. The principles of UDL incorporated into these two assessment types focused on multiple means of expression, recognition, and engagement. These alternate assessment proto-types considered the principles of UDL explicitly, in addition to the consideration of the unique learner characteristics. Moreover, instructional models were translated into assessment practices, allowing for integration of these learning principles. As an example, in either assessment type, the representation of a story could be accessible via text, audio, or Braille, given the story text was digitally available. The teacher could determine which representation was most appropriate for the student being assessed, rather than changing the test or testing conditions for an individual (e.g., the same story could thus be made available for all learners to complete that task in the assessment).

Regardless of the type of alternate assessment or the degree of flexibility built into that assessment, by definition an assessment must have rigorous designs that limit, explain, and control variability. It is here where the flexibility principles of UDL in accommodating individual learner needs may seem at odds with precisely controlled standards of measurement.

### *Accommodating the Learner*

Students who take alternate assessments on alternate achievement standards (students with the most significant cognitive disabilities) represent 1% or less of the total school population. While efforts are underway to clearly describe the learning characteristics of students

with the most significant cognitive disabilities, what we know is that they represent a relatively small number of students from IDEIA categorical definitions such as mental retardation, multiple disabilities, deafblindness, and autism (Kearns & Thurlow, NAAC presentation, 2005). For these students, expressive and receptive communication, context of responses, and generalization of learning are primary sources of learner variability (Kleinert, Browder, & Towles-Reeves, 2005). Therefore, assessment methods which provide multiple options for expression spanning a broad range of students' language development, as well as assessment contexts that are authentic and represent real life applications of knowledge and skills, are critically important. It is also important that these options be established as an integral part of the cycle of assessment and instruction for students to apply knowledge and skills in appropriate situations.

### *Measurement Issues*

Marion and Gong (2005) explain that measurement tradition is based on an assumption that content adheres to a coherent path within a domain which most students follow to acquisition. This path allows the assessment to sample a stable set of knowledge and skills within that domain at any given point in time. This tradition also assumes that most students will follow that trajectory or pathway through the content. Even though we know that there are great variations in abilities across all students, most assessment systems in the standards-based tradition focus more on the stability of the content than on the uniqueness of the learners. However, the variability across learners cannot be overlooked, especially for those with significant cognitive disabilities. Indeed, accurate descriptions of who the learners are and the variation in the pathways to learning are necessary factors in any assessment system in an effort to verify the content acquisition assumptions (Pelligrino, Chudowski, & Glaser, 2003). The result is that the accommodation of individual differences introduces construct barriers that may be

irrelevant to the intended construct or introduces variability in the interpretation of the results by changing the construct itself; either of these results introduces threats to the validity of the assessment (Marion & Gong, 2005).

Alternate assessments present their own unique measurement problems that have to do with flexibility in a variety of areas (Gong & Marion, 2006). Marion and Gong point out many potential issues that can compromise the validity of the assessment; the application of the principles of universal design can directly impact several of these factors, as we will discuss below. Thus, while universal design as applied to alternate assessments may be warranted in an effort to improve fairness to individual students, much work must be done to verify through research-based methods that universal design does indeed lead to the creation of assessments that provide more valid score interpretations (Gong & Marion, 2006). The application of universal design to alternate assessment on alternate achievement standards may be even more complex in that these assessments are already highly flexible in many areas where general assessments are not (Gong & Marion, 2006). Indeed, the application of universal design into these assessments may introduce another potential source of variability.

Regardless of these issues, alternate assessments were developed primarily to ensure that students who exhibit the *most* variability in terms of their response repertoires and content acquisition within a domain are included in the state assessment and accountability systems. These students represent the “widest array of possible users”. Indeed, alternate assessments evolved at least in part *because* of the high variability among both the learners (Kleinert, Browder, & Towles-Reeves, 2005) and the lack of knowledge about the trajectory of acquisition within academic domains (Browder, Wakeman, Spooner, Ahlgrim-Delzell, & Algozzine, 2006).

The originators of **alternate assessment** on alternate achievement standards carefully considered the population of students that were to be assessed and the extent to which those students could access the same content standards as their non-disabled peers (Kleinert & Thurlow, 2001). As a result of this work, assessments were devised that were very considerate of the unique and individual needs of students with significant cognitive disabilities. While this has led to alternate assessments which accommodate individual students, it has not necessarily led to use of assessment methods which are universally designed - solely by their very high degree of individualization. It must be remembered that UDL is not based on an accommodation made for the *individual*, but is based on an accommodation that is available from the onset for ALL to choose to use as appropriate. If we note the “curb cut” as the classic example of UDL, then where is the “curb cut” of alternate assessment? The curb cut was designed to accommodate a select group needing sidewalk access and is now an inherent part of street design, not a retrofit, and benefits many persons, not just those in need of environmental access. Alternate assessment tasks are not always embedded from the onset with multiple means of representation, expression, and engagement, but with proper planning and allowances these assessments can be inclusive of these UDL principles. This implies, first of all, utilizing instructional methods that embrace or apply the principles of UDL. In this way, these methods also become central to task presentation in the assessment arena, as all assessment accommodations should be based on the mode of instruction and not just upon how a task is presented at a point in time of alternate assessment. As a result, application of the principles of UDL to alternate assessments represents a delicate balancing of two competing demands: 1) meeting the need for flexibility in accommodating barriers to ALL students’ presentation and responding to tasks during instruction and assessment;

and 2) the need for standardization of assessments, and the subsequent inferences about student performance that will be made as a result of that assessment.

For purposes of alternate assessment on alternate achievement standards, the principles of UDL are utilized since they are based more on educational considerations. UDL also emphasizes recognition of the variability of the learner in both instruction and assessment, and extreme learner variability is especially evident in the population of students eligible for alternate assessments on alternate achievement standards. Application of these same principles to assessment, including alternate assessments, implies that consideration should be given to multiple means of representation, multiple means of expression, and multiple means of engagement. “Front-loading” principles of UDL into assessments means that once they are delivered, additional accommodations are not necessary and to the greatest extent possible, the assessed constructs are not changed. Since a central tenet of UDL is that accessibility and usability require flexibility of use, technology may further ensure that students with disabilities are tested appropriately by providing them with individualized format and response options. By applying the principles of UDL to assessment, we can assure that students are provided with supports which meet their learning needs (Dolan & Hall, 2001).

While general assessments typically offer a degree of standardization across state systems, alternate assessment systems differ and are even still evolving in many states. Prevailing large scale alternate assessment systems vary, with some being product based (i.e., portfolio), and or determined by student observations (i.e., performance event or checklist), or some combination thereof. Whether the alternate assessment’s “evidence” or “observation” of learning is inclusive of UDL (i.e., student opportunities for multiple means of representation, expression and engagement) may be dependent on whether or not there are conditions or

requirements of the alternate assessment administration that require and or look for UDL in the presentation and completion of the *assessment task*. This series of questions may help to evaluate considerations of UDL in alternate assessments: a) Is the task only represented in one mode or medium (e.g., paper only) or does it include other options for presentation (e.g., audio, computer, pictorial, etc.) to fit different students' needs and preferences; b) Is the student required to demonstrate understanding in a single manner (e.g., written or oral response) or does the response format offer the student a variety of communication means; c) Does the assessment task provide few options for choice or means to maintain student attention or does it systematically incorporate student choice and selection of reinforcement? Similarly, is it presented in an assortment of ways likely to engage the student (e.g., choice of assessment context, use of digital enhancements); and d) Are the conditions under which the student is assessed the same as those conditions for how the student is taught? In the next section, we will consider the basic formats of alternate assessments on alternate achievement standards, and a broader view of the application of UDL to each of the types or formats of alternate assessments - portfolio, performance event, and checklist.

### *Formats of Alternate Assessments on Alternate Achievement Standards*

While variations of alternate assessments on alternate achievement standards continue to evolve, there are three basic alternate assessment approaches (Roeber, 2002). These three basic formats include: 1) a *portfolio* or a body of evidence approach; 2) a *checklist* or rating scale; and 3) a *performance assessment* approach. A fourth type, electronic assessments including self-leveling assessments and electronically delivered multiple-choice assessments are described but continue to be rare in alternate assessments on alternate achievement standards.

The portfolio is a purposeful and systematic collection of student work generated from instruction that is judged against predetermined scoring criteria. The checklist or rating scale model requires teacher observation of whether or not individual students are able to perform discrete skills or activities. Finally, the performance assessment approach is a direct observation of a skill in a typically one-to-one prescribed assessment format (e.g., responding to questions about a reading passage in language arts).

All three types of alternate assessments have varying degrees of standardization and flexibility (Gong & Marion, 2006). According to Gong and Marion, alternate assessments on alternate achievement standards tend to be highly flexible when compared to general assessment on nine of ten important factors. These factors include curricular goals, instructional experiences, observational methodology, administration, scoring, achievement standards, interpretation and reporting, and student accountability (Gong & Marion, 2006). We will describe the intersection between the requirements for assessment standardization and the principles of UDL (i.e., multiple means of expression, representation and engagement) for each of the three alternate assessment formats.

### *Portfolio Assessment*

The portfolio assessment process represents an example of the cyclical and integrated connection between instruction and assessment. Instruction by tradition tends to be highly flexible, while large-scale assessment by tradition tends to be highly structured. Alternate assessment portfolios intentionally include materials that result directly from instruction, and are generally taken from student work that is collected over time, rather than just one event. This instruction can be augmented with supports that increase the probability that the student can

respond to the instructional/assessment activities. For example: Leah, a young high school student with significant motor, sensory, and language disabilities, chooses to use a dial scan with a head control switch to select the correct choice from an array to answer a mathematics question, while other students respond by use of manipulative objects or pictures. In this context, multiple means of expression generally means that various means of communication are acceptable **and available** (e.g., augmentative systems, picture systems, object systems) to enable the student to demonstrate what he or she knows about the task(s) presented. Multiple means of representation may mean the student is provided opportunity to respond orally, by use of gesture or augmentative communication. This allows the student to practice in familiar contexts, utilize meaningful representations, and express what he or she knows in a familiar modality, while maintaining an element of control and choice over the assessment process. The student having choice of context, setting or possible selection of similar or parallel test items could all contribute to engagement. Within this portfolio example, there is thus a direct relationship to the principles of UDL: multiple means of expression, representation and engagement are embodied in the process of the assessment itself.

In most alternate assessment portfolio systems, the teacher/team selects the curricular goals and content standards to be assessed, although in some cases the content standard related to the assessment item may be predetermined and set by design specifications (CO EAG, 2004). The primary reasons for allowing teachers/teams to select the items include the lack of a coherent academic curricular progression for students with significant cognitive disabilities and the historic role of the Individualized Education Program (IEP) team as the essential mediator of individual student goals (Browder et al., 2005; Grisham-Brown & Kearns, 2001). However,

more recent portfolio models have emerged in which both the content and the data collection procedures are prescribed.

Most portfolio systems utilize systematic data collection procedures that come from well-documented research based in the behavioral tradition (Wolery, Ault, & Doyle, 1992). This means that while there may be flexibility in the goal selection as described by Gong and Marion (in preparation), the observation scoring procedures are generally more rigorous and prescriptive (e.g., how to prompt student performance and how to record the results of instruction). In addition to systematic data, most portfolio systems require at least one other type of evidence (e.g., work sample or audio/video tape) that supports the instructional data. In the following example, the content and assessment tasks were developed as a part of the assessment design (i.e., not selected by the teacher or the IEP team), and instructional data collection occurred over a ten day period.

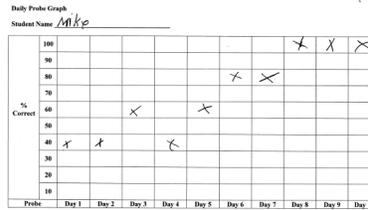
Mike is an eighth grade student with a significant cognitive disability learning about reading genre, specifically that of biography (CO EAG, 2004); the assessment includes listening and reading comprehension. His portfolio entry included the following items: a) a data sheet and accompanying graph of probe questions about “biography” collected over time, b) a work-sample where Mike indicated the five features of a biography, and c) a videotape of Mike describing his favorite biography (see Figure 1).

Figure 1: Sample of Mike’s Portfolio Materials

Daily Probe Data Sheet

Student Name Mike

Date:	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10
1. Who is this paragraph about?	+	-	-	-	-	-	-	+	+	+
2. In what state was _____ born?	-	-	-	-	-	+	+	+	+	+
3. On what date was _____ born?	-	+	+	+	+	+	+	+	+	+
4. Where did _____ go to school?	-	+	+	+	+	+	+	+	+	+
5. What is _____ famous for?	+	+	+	+	+	+	+	+	+	+
Number of reading passage used for this trial (1-5)	#1	#2	#3	#4	#5	#1	#2	#3	#4	#5
Number correct responses (+)	2	2	3	2	3	4	4	5	5	5
Percentage correct responses % (+)	40%	40%	60%	40%	60%	80%	80%	100%	100%	100%
Number incorrect responses (-)	3	3	2	3	2	1	1	0	0	0
Percentage incorrect responses % (-)	60%	60%	40%	60%	40%	20%	20%	0%	0%	0%



Key: (+) = independent correct response  
 (-) = incorrect response

Exit Sheet 1

Student Name Mike (Mike's Original Form) Date Day 1

Define biography by completing the web diagram with five characteristics of a biography.

Given 5 important facts about a biography using the diagram below when a person was born.

NOT DUPLICATE  
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Students administered this measurement task may view text, a storyboard, a symbol system or hear the passage as they view the page. Mike's use of symbols on the work sample represents multiple means of representation. Mike uses the symbols to prompt the words, as an example of multiple means of expression; others may speak, write or point. The teacher denotes Mike's performance on the data sheet while Mike responds either orally, with use of gestures, by pointing to symbols or by use of his electronic communication system. It is clear from the data sheets, that had Mike been assessed on only one day, he would likely have not responded *at all* to the comprehension questions about biography. It was found that Mike was quite enamored of watching himself perform on video, so during each trial he was kept engaged by having the opportunity to watch his taped performance and to re-wind and replay at his own pace whenever

he improved his response. This facet provides for the dimension of multiple means of engagement.

### *Structured Performance Events*

Alternate assessments on alternate achievement standards that utilize structured performance activities collected during a specified period of time are also designed to be “modality flexible” (Fahey, Filbin, & Connolly, 2005 ), meaning that students may receive the supports or materials that maximize the probability that they will respond to the items. In this example, we identify the principles of UDL with its flexibility and choice in representation, expression, and engagement. The items and tasks are specified, as is the scaffolding used to score the student’s performance. This scaffolding provides increasing levels of support, including variation in task presentation, to increase the probability of eliciting a student response (multiple means of representation). Multiple sets of materials are provided, ranging from typical text to more concrete pictures or real items that may be selected based on individual student needs (multiple means of representation). The student chooses the method(s) of response, which indicates multiple means of expression. While the assessment is conducted within a specified period of time, the individual assessment can be stopped and started as needed by the student within that window, which adds further to the multiple means of expression. Mike, our example 8<sup>th</sup> grade student with a significant cognitive disability, is intermittently able to choose a reinforcer for participation based on a menu, so this contributes to student engagement.

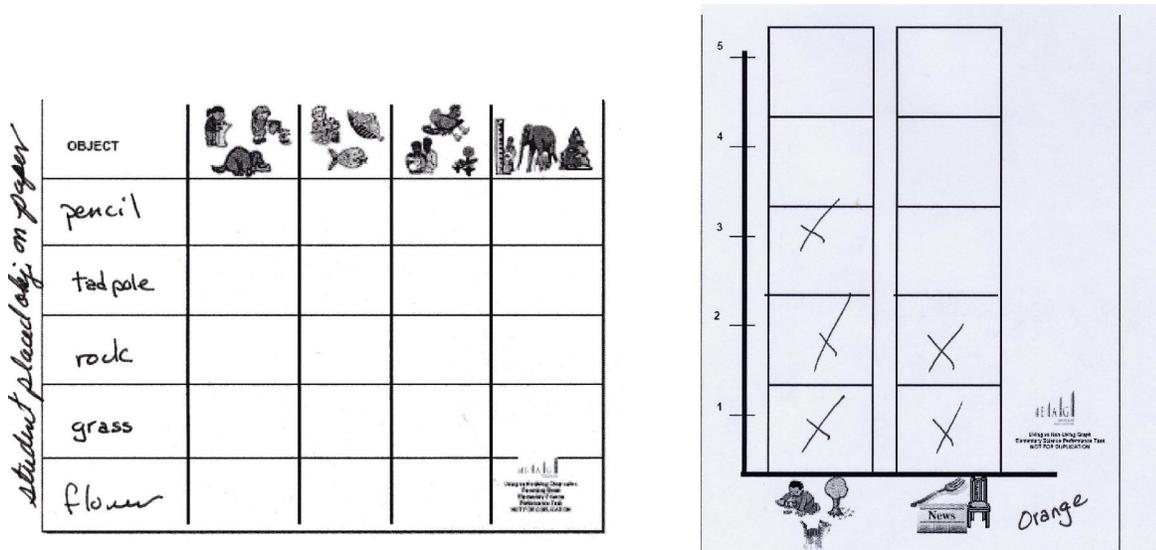
In Science, Mike may be assessed on a task in which he needs to demonstrate his understanding of living and non-living objects. When a task is delivered, the teacher is given a data sheet with a predetermined set of supports with increasing levels of assistance as needed to

elicit the desired student response. This provides the flexibility for changes in the mode of presentation from paper and oral formats to the use of manipulatives and oral supports, to oral supports, manipulatives and modeling, so that multiple means of representation are available. Additionally, all students, including Mike, are given the choice of responding orally, with gestures, by pointing to pictures, or by using an electronic communication system, which provides multiple means of expression (see Figures 2 and 3). Mike is also given his choice of reinforcements for his on-task behavior and responding; this provides for multiple means of engagement.

Figure 2: Sample teacher materials for Performance Assessment Science measure. (CO EAG 2004)

<p><b>Step 9: Justify categories</b></p>		
<p><b>Materials Needed</b>                  Living vs. Nonliving Bar Graph                  Living vs. Nonliving Justification Cards                  Water/Reproduction Living Needs Cards                  An object from the teacher's collection</p>	<p><b>Script</b>                  Point to the living objects on the graph.                  Communicate: "How do you know these objects in this column are living?" (This is living because....)                   Prepare: Rearrange the cards. Point to the nonliving objects on the graph.                  Communicate: "How do you know these objects in this column are non-living?"</p>	<p><b>Indicators</b>                  Justify organization of data</p> <p><b>Scoring:</b>                  If the student correctly provides justification for placing objects in the LIVING and NONLIVING columns without teacher prompt, score RED                  If the student correctly provides justification for placing objects in the LIVING and NONLIVING columns with clarification prompts or less, score ORANGE                  If the student correctly provides justification for placing objects in the LIVING and NONLIVING columns with specific prompts or less, score YELLOW                  If the student correctly provides justification for placing objects in the LIVING and NONLIVING columns with exact responses modeled or less prompt, score GREEN                  If the student does not demonstrate any level of engagement with the activity for the LIVING or NONLIVING trial, score BLUE</p>
<p><b>Set-Up</b>                  Place the water/grow/crayon Living Needs/Characteristics cards and the no water/no growth Justification Cards in front of the student.                  Prepare: Review the cards with the student.                  Communicate: "This card shows needs water, this card shows grows or gets bigger, this card shows crayon, this cards shows doesn't need water, this card shows doesn't grow or get bigger."</p>	<p><b>Notes about scaffolding</b>  <b>Red:</b> Student indicates water or growth to justify living, the student indicates no water/no growth for nonliving.  <b>Orange:</b> Place the teacher's object in front of the student. Communicate: "This is an object from my collection. I would put this on the (living/nonliving) column." Point to a correct living need/characteristic or justification card. Communicate: "This is (living/nonliving) because living things (or nonliving) need water (or don't need water)." Point to the living column and then the living need/characteristic or justification card. Communicate: "Show me how you know the objects in this column are living."  <b>Yellow:</b> Remove all pictures except the Water and Crayon Needs/Characteristics cards. Point to the living column on the student's bar graph. Communicate: "Do you know these objects are living because they need water or because they need crayons?"  <b>Green:</b> Remove all but the water Needs/Characteristics card. Communicate: "There are living objects in this column. I know these are living because they need water. Point to give me/eye gaze to the picture that shows how you know these objects are living?"  <b>Blue:</b> Student does not demonstrate any level of engagement with the activity.</p>	<p><b>Expanded Benchmarks Addressed</b>                  1.4.10 Recognize and identify when patterns in data exists (e.g. indicate attributes or criteria for organizing data).</p>
<p><i>Adaptations: Images may be provided in a digital format for a student to use a scanning or touch screen device.</i></p>		

Figure 3: Sample student recording forms Science (CO EAG 2004)



*Teacher Rating Checklist*

Teacher rating checklists require the teacher to rate specified items based on observation of skills and/or activities. The teacher bases that rating on an instructional observation or may design a task specifically to elicit a response from the student for a particular item as designated by the Skills Checklist (CT State DOE, 2005). The ratings are generally based on the extent to which the student can correctly perform the specified item within the teacher defined task, and the level of student independence is a factor in scoring performance as well. The UDL principles of multiple means of expression, representation, and engagement are built into these assessments in much the same way as that of the portfolio. The skill area and tasks are prescribed; however, the teacher designs the assessment task. In doing so, the teacher should, as in the instructional process, consider the individual student's need for multiple means to express what he or she knows, to have options for materials presentation and prompting systems to access the intent or

meaning of the items (multiple means of recognition), and to have multiple opportunities and contexts in which to complete the assessment (multiple means of engagement). As an example, we will return to our 8<sup>th</sup> grade student Mike.

The Skills Checklist procedure is designed to evaluate and record student performance abilities based on the structure of the instructional lesson. The checklist itself (see figure 4) contains a description of the skill within a content area, in this example Language Arts. The teacher then creates a task or uses a task from instruction, observes Mike as he completes the task, and determines the appropriate score, based on accuracy and support level during task completion. Mike was asked to respond to a series of questions about the text, *Hatchet*. Mike’s teacher had Mike listen to an audio version of the text as Mike held the book and listened (multiple means of representation, as Mike cannot decode text, but listens well and connects with text). During instruction and for assessment tasks, the teacher pauses the tape at critical points and asks Mike questions about what he has heard.

Figure 4: Skills Checklist task examples and score sheet. (CT DOE, 2005)

GRADE 8 LANGUAGE ARTS ASSESSMENT		
<b>Reading and Responding</b>		
Reminder: <i>Grade level text means grade level content.</i>		
A. <i>Students use appropriate strategies before, during and after reading in order to construct meaning.</i>		
1. <i>Activate prior knowledge, establish purposes for reading and adjust the purposes while reading. RR 8.1</i>		
<u>Essence:</u> <i>Indicate what is already known about the text, determine reasons for reading it and be able to adjust accordingly.</i>		
Make one or more predictions related to the grade level text	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Generate one or more questions related to grade level text based on text features (e.g., captions, table of contents, book jacket, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Indicate what is known about the grade level text based on text features (e.g., captions, table of contents, book jacket, etc.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. <i>Monitor comprehension and apply appropriate strategies when understanding breaks down.</i>		

⊖ Does not demonstrate  
 ⊕ Developing/Supporting  
 ⊗ Mastered/Independent

Mike's usual form of communication to his teacher is through his symbol system. He will select and order symbols from his repertoire of symbols to communicate his response. For example, Mike is learning to predict what he thinks may happen next, when the action in the story is foreshadowing a new challenge for the main character, Brian. This exemplifies multiple means of expression, as Mike uses a symbol system to demonstrate his understanding while others may point, write, or speak. The text itself was chosen by Mike from a set of three books made available to him by his teacher. Providing students with choice in instruction and assessment is very empowering and engaging. In applying the principle of multiple means of engagement, the intent is to encourage on-task behavior and engagement by selection of a text of interest to the learner - Mike chose *Hatchet*. Additional ways to increase engagement include the teacher offering the students choices of setting, conditions, and challenges.

During instruction, as well as assessment tasks related to reading this text, the teacher may vary the supports and prompts provided for Mike as he responds to questions. For those items included in the Skills Checklist, the teacher would use the rubric below to assign a score on the three point scale based on the student's actual responses. (See Figure 5)

Figure 5: Scoring Rubric for Skills Checklist (CT DOE)

- ② **Does not demonstrate skill:** Use this response for skills that the student does not demonstrate in any setting.
- ① **Developing/Supported:** Use this response for skills the student displays only with some level of prompt support, i.e., a verbal cue, partial physical guidance, repetition of instructions, etc.
- You should also use this response for skills that are displayed inconsistently. If a student can demonstrate a skill occasionally, but not consistently and at different times then the skill should be rated “ ① Developing/Supported.”
- ② **Mastered/Independent:** Use this response for skills that the student clearly has mastered and performs independently.
- To be rated as “ ② Mastered/Independent” the student must demonstrate the skill consistently over time. The student does not have to demonstrate the skill every time, but over the course of the year would have to show that s/he has mastered the skill, (e.g., the student successfully performed a skill 80% or more of the time without prompt support such as verbal cues, partial physical guidance, etc.).
- Again, if the student continues to require prompt support to exhibit this skill do not rate the skill as “ ② Mastered/Independent.”

### *Technology-based Assessments*

The application of UDL principles to technology-based assessments appears to also show promise for students with disabilities (Kearns, Dolan, Lewis, Lee, & Trimble, 2006). While use of technology is not a prerequisite for UDL, the digital environment allows for much greater flexibility. Providing multiple means of representation, expression, and engagement is greatly enhanced by having access to the dynamic nature and flexibility of current digital media. In contrast to print based material, digital technology provides opportunity for use of audio, video, images, text to speech (TTS), speech to text to touch (e.g., Braille) and even image-to-touch (e.g., tactile graphics) (Dolan & Hall, 2001). For purposes of assessment, this presents opportunities for students to have access to electronic assessment systems that provide an extensive new range of options for multiple means of representation, expression, and engagement. Use of such technologies in assessment is predicated on use of the same tools in ongoing classroom instruction. Only to the extent that students have become fluent and familiar

with the instructional capacity of such tools will they have access to and realize the similar benefits of these new technologies for improved access to assessment.

A key outcome in all of the alternate assessment systems has been to design an assessment that increases the probability that a student with a significant cognitive disability can respond to the assessment items. In many alternate assessment systems, assistive technology has played a key role in both the implementation and in student results. However, it is important to note a key difference between assistive technology (AT) and UDL. With AT, the emphasis is on how AT can be used to help individual students to overcome the barriers of the curriculum and/or their environment to improve independence; AT is thus primarily a tool for individual access. AT provision then has been addressed to the unique needs of an individual. UDL, on the other hand, deals with how modern technology and effective teaching practices can be used to create curriculum and environments that overcome the barriers to learning through their original design. UDL is intended to create learning situations that can be used by everyone, with or without disabilities and in that sense are not intended to be personalized, as is the case with AT (Rose, Hasselbring, Stahl, & Zabala, 2004). AT devices are a means to access, such as use of a personal text reader, while universal design may mean the text's original format is made accessible, which allows all text or screen readers to work. AT and the UDL principles work in tandem, then, for ultimate access and participation in instruction and assessment. Both solutions are needed for some learners, particularly students with significant cognitive disabilities who are eligible for alternate assessments on alternate achievement standards.

Indeed, technology holds great promise for dramatically bridging this gap in curricular access, but thus far the potential remains largely unrealized for students with cognitive

disabilities. Review of the literature on evaluation and impact of technology reveals that meeting the instructional needs of students with cognitive disabilities has been of secondary concern (Wehmeyer, Smith, & Davies, 2004). The issue has been further exacerbated by the historic tendency for the provision of technology supports for students with significant cognitive disabilities to be regarded as a “treatment” rather than as an instructional accommodation (e.g., using a communication device) (Todis, 2001).

### *The Assessment- Instruction Link*

Most alternate assessments on alternate achievement standards were specifically designed to improve access to the general curriculum and student results. Providing students who have significant cognitive disabilities with a universally designed learning environment increases the probability they will perform well on any type of assessment. Increasingly, technology looms large in both the support of individual student responses via assistive technology and in terms of the more universal access to curriculum through the flexibility provided by digitized curricular materials. Technology increases the power and breadth of new media (i.e., digital text, digital audio, digital video, digital multimedia, hypertext, and hypermedia) and their tremendous flexibility and availability (Rose & Meyer, 2005). Digital technology presents opportunities for students to have access to electronic curricular materials that provide an extensive new range of choices in presentation, expression, and engagement in instruction. In addition, the application of UDL (Rose & Meyer, 2005) in the design of curriculum and instruction thus holds the promise of access to the general curriculum for a much broader array of learners. While student use of technology in alternate assessments on alternate achievement standards is limited, use of universally-designed technology-based assessment solutions promises a new frontier in assisting students to access information and demonstrate what they know and can do.

*Summary*

The UDL principles, multiple means of representation, multiple means of engagement, and multiple means of expression play out similarly in the three major formats of alternate assessments on alternate achievement standards. Considering UDL in the application to these assessments has far reaching implications particularly for instruction:

- 1) Curriculum changes and standards-based reform should consider UDL implementation from the design of curriculum and instruction, versus retrofitting a concept to existing structures.
- 2) Special education programs at the state and district level need to always include UDL in any discussion of how to implement IDEIA federal requirements, if we are truly serious about all students having access to and progressing in the general curriculum.
- 3) State and regional technology administrators need to move beyond their traditional view of assistive technology applied to just the individual student level to their ever-present responsibility for integrating technology into instruction for all students, including those with significant cognitive disabilities.
- 4) Technology based solutions may provide some new possibilities in the area of alternate assessments on alternate achievement standards in ways that may allow us to provide more structure and rigor to the assessment situation; however, we have not yet fully embraced technology solutions outside of assistive technology for this population of students.

Navigating the fine line between flexibility for the learner and structure for the assessment will continue to challenge both measurement experts and educators. The ultimate resolution to validity issues surrounding this inherent flexibility in alternate assessments may never be fully achieved. Indeed, states will need to consider the cost/benefits of each of the choices that proposed flexibility may offer and consider carefully the intended and unintended consequences of those choices. While the principles of UDL may improve accessibility of instruction and assessment, much work must be done to verify through research-based methods that these principles do indeed lead to the creation of assessments that provide valid score interpretations. As NAAC continues this work, we will further examine the process of applying UDL to instruction and assessment for students with significant cognitive disabilities.

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