Creating Access to the General Curriculum With Links to Grade-Level Content for Students With Significant Cognitive Disabilities:

An Explication of the Concept

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Current federal policy requires that students with disabilities participate in large-scale assessments and be included in schools' scores for adequate yearly progress. Students with significant cognitive disabilities may participate in an alternate assessment with alternate achievement standards, but these standards must be linked to grade-level content and promote access to the general curriculum. Because most research with this population has focused on nonacademic life skills, few guidelines exist for teaching and assessing skills that are linked to grade-level content. One challenge to developing research and practice in grade-linked academic content for students with significant cognitive disabilities is the absence of a clear conceptual framework. This article—developed by a team of special education, curriculum content, and measurement experts—proposes a conceptual definition and criteria for linking instruction and assessment to grade-level academic content.

Legislation in the last decade has resulted in increasing expectations for students with significant cognitive disabilities to have access to general curriculum content. The 1997 amendments to the Individuals with Disabilities Education Act (IDEA) required that students with disabilities be included in general and districtwide assessment programs, with alternate assessments conducted beginning July 1, 2000, for students who could not participate in the general assessments. IDEA (1997) also required that all students have access to the general curriculum; that is, the state or locally defined course of study. In 2001 the reauthorization of the 1965 Elementary and Secondary Education Act, entitled the No Child Left Behind Act of 2001 (NCLB), required states to establish challenging standards; to implement assessments that measure students' performance against those standards; and to hold schools accountable for achievement in reading, math, and science. Final NCLB regulations on including students with the most significant cognitive disabilities permitted states to develop alternate achievement standards for reporting adequate yearly progress for students with significant cognitive disabilities (up to 1% of the general population), but further stipulated that these alternate achievement standards must be aligned with a state's academic content standards, promote access to the general curriculum, and reflect the highest achievement standards possible (U.S. Department of Education, 2003, § 200.1(d)). Subsequent nonregulatory guidance denoted that alternate assessments "should be clearly related to grade-level content, although it may be restricted in scope or complexity or take the form of introductory or prerequisite skills" (U.S. Department of Education, 2005, p. 26). Through these policies, the expectation for students with significant cognitive disabilities has evolved from simply participating in assessment; to the documented achievement of adequate yearly progress in reading, math, and science; to the expectation that these assessments document achievement with clear links to state grade-level content standards, even when applying alternate achievement standards for this population.

Access to the general curriculum may be promoted through inclusion in general education classes (Fisher & Frey, 2001). Research has shown that students with significant disabilities benefit socially (Fryxell & Kennedy, 1995; Hunt, Alwell, Farron-Davis, & Goetz, 1996) and acquire new skills in general education classes when taught alongside peers with typical development (Hunt, Staub, Alwell, & Goetz, 1994; McDonnell, Johnson, Polychronis, & Risen, 2002). In contrast, the newest reauthorization of IDEA, the Individuals with Disabilities Education Improvement Act of 2004 (IDEIA), does not require that all students receive access to general curricu-

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lum content through placement in general education classes. Instead, the law requires that students who participate in alternate assessments based on alternate achievement standards receive instruction from teachers who are highly qualified with subject matter knowledge. Under the current policy, then, a special education teacher may be highly qualified to teach academic content and do so in any type of classroom, including a self-contained special education class. Students in all types of special education placements must have access to general curriculum content and participate in alternate assessments based on grade-level content standards.

Educators sometimes find creating access to grade-level academic content to be confusing or even incomprehensible. Surveys reveal that some teachers question the relevance of this grade-level content for students with significant intellectual disabilities (Agran, Alper, & Wehmeyer, 2002) or do not agree that alternate assessment promotes access to the general curriculum standards (Flowers, Ahlgrim-Delzell, Browder, & Spooner, 2005; Kleinert, Kennedy, & Kearns, 1999). Some states have not clearly linked alternate assessments to the general academic content (Browder et al., 2005). Even states that have alternate assessments with strong links to academic content are challenged to assess the full depth and breadth of the general academic curriculum (Flowers, Browder, & Ahlgrim-Delzell, 2006). Experts in severe disabilities have also questioned the meaningfulness of some of the skills that states are using to "extend" their academic content standards to this population (Ford, Davern, & Schnorr, 2001).

Despite this confusion and doubt, there has been progress in recent years in understanding how to create access to the general curriculum for students with significant cognitive disabilities. Many states have revised their alternate assessments to include a stronger academic focus (Thompson, Thurlow, Johnstone, & Altman, 2005). Some states have also created curricular frameworks with numerous examples of how to make grade-level content accessible to students with significant disabilities (Massachusetts Department of Education, 2001; South Dakota Department of Education, n.d.). Additional resources have emerged on how to plan for general curriculum access (Cushing, Clark, Carter, & Kennedy, 2005; Hitchcock, Meyer, Rose, & Jackson, 2002; Ryndak & Billingsley, 2004); how to create alternate assessments that link to academic content (Kleinert & Kearns, 2001; Thompson, Quenemoen, Thurlow, & Ysseldyke, 2001); and how to teach academic content to students with significant cognitive disabilities (Browder & Spooner, 2006; Downing, 1996; Ryndak & Alper, 1996). To help educators, the National Alternate Assessment Center provides guidelines and examples of how to adequately assess grade-level content for this population.

Educators' perceptions about the overall value of alternate assessments and of access to the general curriculum may be changing as they gain more experience with these areas. Flowers et al. (2005) found that teachers who reported that alternate assessments counted in school accountability were more positive about alternate assessment in general and more likely to agree that this process promoted access to the general curriculum. Since the Flowers et al. survey was conducted in 2003, NCLB (beginning with assessments administered in 2004–2005) has required that all students' scores be considered for school accountability, regardless of disability.

Although policy promoting increased access to general curriculum content for students with significant cognitive disabilities has been reinforced through multiple laws and regulations, it continues to be a legal requirement that is not well understood. Some educators continue to question the wisdom of the policy itself as incompatible with the goal of educating this population for adult living in inclusive communities. We propose four reasons why promoting access to grade-level academic content is compatible with, and even essential to, this goal. First, the purpose of school reform for all students has been adult competence. The standards-based reform movement can be traced to the 1983 publication *A Nation at Risk,* by the National Commission on Excellence in Education (U.S. Department of Education, 1983). This report sharply criticized U.S. educational practices for not preparing students for their future and noted the impact that this weakness would have on society. The subsequent educational standards movement sought to define high-quality outcomes for students. One of the original promoters of educational standards, former Assistant Secretary of Education, Diane Ravitch, noted, "standards are created because they improve the activity of life" (1995, p. 9). While the impact of standards-based reform continues to be debated among educators, we note that state standards are intended to improve the "activity of life."

Second, educators have historically increased their expectations for what can be achieved by students with significant cognitive disabilities (Browder et al., 2003). In the 1980s, educators proposed that students with significant cognitive disabilities could acquire skills and opportunities preparing them for life in the community. While only a small percentage of students with significant cognitive disabilities have achieved the ideal of having their own home or a competitive job in the community, many more individuals have increased community access. The most recent expectation is that this population can learn academic content that is related to grade-level standards and that is beneficial to their lives. While not all may become literate in this content, it is feasible that more can gain some degree of academic competence with focused instruction in this area.

The third reason we argue for promoting access to grade-level academic content is for equal educational opportunity. Historically, reading instruction for students with significant cognitive disabilities has been underemphasized. Qualitative research including content analyses of textbooks (Katims, 2000) and ethnographic studies of children's school experiences (Kliewer & Biklen, 2001) reveal a consistent lack of focus on reading. Similarly, in the past, students with significant cognitive disabilities have received little instruction on academic content. Evidence does exist that this population can learn some components of reading (Browder, Wakeman, Spooner,

Ahlgrim-Delzell, & Algozzine, 2006) and math skills (Browder, Spooner, Ahlgrim-Delzell, Harris, & Wakeman, in press), but these proven methods of reading instruction have been limited to community activities like grocery sight words and using money for purchasing. No research exists indicating that mastering a certain number of functional life skills is a prerequisite to academic learning or that academic instruction will compete with this ongoing priority.

The fourth reason for teaching academic content related to the grade level is to give students increased means and opportunities for self-determination. The right to make one's own decisions about life is highly valued in U.S. society and has been shown to be related to quality of life for individuals with disabilities (Wehmeyer & Schwartz, 1998). For students with limited communication skills, preferences often must be inferred from responses to activities and opportunities. Whether a student might prefer opportunities to engage with stories, discover new information through inquiry, or work with mathematical concepts is unknown when there has been no exposure. Increased academic skills, like picture selection or written words, also gives students additional ways to make their preferences known.

Given these reasons, we propose that access to academic content that links to established grade-level standards is important for students with significant cognitive disabilities. To work toward this goal requires developing a bridge between the concept and the requirements states face to include this population in accountability as specified by NCLB.

The purpose of this article is to offer a conceptual framework for understanding the alignment of instruction and alternate assessment with grade-level content for students with significant cognitive disabilities. The framework was developed by a team of special education, curriculum content, and measurement experts. Our specific focus is on the development of valid alternate assessments, the identification of meaningful skills for instruction, and the proposal of a conceptual foundation to use in future research. To define this concept, we rely primarily on current federal policy statements about the links between alternate assessment and state academic content standards. These policies yield four criteria for the concept. We then consider some of the issues in applying grade-level content standards to this population. From these issues, we derive three additional criteria. These criteria and a definition of the concept are then summarized and illustrated with an example.

Criteria Derived From Current Federal Policy

To understand the concept of linking assessment and instruction to grade-level content, one must understand the difference between academic content standards and achievement standards. *Standards and Assessments Peer Review Guidance* (U.S. Department of Education, 2004), which is used with states to evaluate their adherence to NCLB, defines *academic content standards* as what all students are expected to know and be able to do. A content standard can be defined as "a statement of a broad goal describing expectations for students in a subject matter at a particular grade or at the completion of a level of school" (American Educational Research Association [AERA], American Psychological Association [APA], & National Council on Measurement in Education [NCME], 1999, p. 174).

In contrast, *Standards and Assessments Peer Review Guidance* notes that *achievement standards* "must be aligned with the State's academic content standards in that they capture the full range and depth of knowledge and skills defined in the State's challenging, coherent, and rigorous academic content standards" (U.S. Department of Education, 2004, p. 14). An achievement standard, then, is the desired level or depth of performance. Testing experts define the term *performance standard* as "an objective definition of a certain level of performance in some domain in terms of a cut score or range of scores on the score scale of a test measuring proficiency in this domain" (AERA et al., 1999, p. 179).

Students with significant cognitive disabilities may meet Adequate Yearly Progress (AYP) goals through the use of either modified or alternate achievement standards. This article focuses specifically on students with significant cognitive disabilities who can meet AYP through alternate assessments that are judged against alternate achievement standards. As federal policy has set a 1% cap on students who can show AYP in this manner, educators sometimes refer to this population as the "1%." The information presented here is not focused on the "2%" for whom modified achievement standards can be applied and who are not specified as having significant cognitive disabilities. From the federal policy related specifically to alternate assessments judged against alternate achievement standards, four criteria for linking to grade-level academic content can be derived: (a) the content is judged to be academic, (b) the student's *assigned* grade level serves as the initial point of reference, (c) the achievement expectation is *linked* to this grade-level reference but differs in breadth or depth, and (d) there is some differentiation in achievement expectations across grade levels or grade bands (U.S. Department of Education, 2005). Each of these criteria will now be described as it relates to the concept of teaching grade-related academics.

Criterion 1: The Content Is Academic

The requirement that alternate assessments focus on academic content was not evident when states first began developing alternate assessments. Many states focused on separate functional curricula rather than on the state standards (Lehr & Thurlow, 2003). Subsequent federal nonregulatory guidelines clarified that functional life goals were not appropriate achievement measures for AYP purposes (U.S. Department of Education, 2005, p. 17). Focusing alternate assessments on

academic content standards does *not* mean excluding functional goals from the Individualized Education Program (IEP) or from instruction. In contrast, trying to make every academic goal fit a community-referenced activity may result in falling short of true access. For example, the "functional" activity for learning many reading skills may be sharing books; the "functional" activity for a science concept may be a classroom experiment (e.g., learning about photosynthesis). Browder et al. (2004) found that alternate assessments often use a blend of functional and academic content, but those judged to be most closely aligned to general reading and math ability had more academic tasks and contexts (Browder et al., 2003). Teaching academic content does not mean abandoning students' needs for functional skills instruction, but it does mean finding a way to teach academic content to all students with significant cognitive disabilities since, by federal mandate, all students must be assessed in language arts/reading, math, and science. Of course, creating full educational opportunity means providing learning opportunities in nonmandated content, like social studies, as well.

Criterion 2: The Student's Assigned Grade Level Is the Point of Reference

Alternate Achievement Standards for Students with the Most Significant Cognitive Disabilities: Non-regulatory Guidance states that the content of alternate achievement standards "should be clearly related to grade-level content, although it may be restricted in scope or complexity or take the form of introductory or prerequisite skills" (U.S. Department of Education, 2005, p. 26). Educators can begin with the academic content standards for the grade level in which the student is enrolled and then adapt or "extend" these content standards for the individual with disabilities. In creating these extensions, it is important not to simply substitute academic material that is neither age nor grade appropriate. One of the "pitfalls" of the developmental era of curriculum for this population was having students caught in years of academic "prerequisites." For example, identifying shapes like circles and triangles is an appropriate focus for mathematics at the kindergarten (K) to Grade 1 level, but probably not the priority for a middle school student in geometry. Instead, the middle school student may need to focus on concepts like the distance between two points (a line); a concept linked both to the grade level and to more meaningful applications for adolescents (e.g., traveling from Point A to Point B).

Identifying the appropriate grade level of focus can be confusing when students are served in ungraded, self-contained classes. For these students, the comparable grade level should be based on chronological age. Once a planning team identifies the student's grade level, confusion may still exist about how to select priority skills for instruction. For the last two decades, educators have been using a process known as an "ecological inventory" to select content based on the activities of peers who are the same chronological age. This process leads to identifying "age appropriate" skills. These same steps can apply to selecting "grade appropriate" content by (a) identifying academic content of same-grade-level peers, (b) selecting specific activities for instruction, (c) planning needed accommodations and supports, and (d) teaching in the typical settings and with typical activities and materials to the greatest extent possible. Skills identified through this process would be "grade appropriate." Note that the outcomes are still the same, in that students will end up with skills that they can perform with some level of independence (versus passive participation through full physical guidance), for which they have shown some preference, and for which they receive some training for generalization to their current and future lives. Teachers in self-contained classrooms also must plan for students in multiple grade levels. Alternate assessments may be linked to a student's grade band (e.g., elementary, middle, secondary) rather than to specific grade levels. Similarly, teachers may find they need to do some grade-band-focused instruction, such as developing a 3-year plan for middle school science topics. In states where alternate assessments are focused specifically on each grade level, teachers will need help identifying the priorities within these grades to be able to address the multigrade needs of students within an academic year.

Criterion 3: The Achievement Level Is Linked to This Grade-Level Content but Differs in Breadth or Depth

The Title I final regulations (U.S. Department of Education, 2003) note that in addition to being aligned with academic content standards, alternate achievement standards must promote access to the general curriculum and reflect professional judgment of the highest achievement standards possible. A state may set multiple alternate achievement standards for students participating in alternate assessments. However, Nonregulatory Guidance states that using individual goals as the standards is not permissible (U.S. Department of Education, 2005, p. 17). This guidance also notes that these alternate achievement expectations may reflect an expectation for learning a narrower range of content (e.g., fewer objectives under a content standard) and academic content that is less complex though still challenging (U.S. Department of Education, p. 16). The skills the student acquires may be associated with those typically acquired at earlier grades or that are prerequisites to attaining grade-level proficiency (U.S. Department of Education, pp. 26–27). The alternate assessment may also be based on "out-of-level" assessments—assessments designed to test students at lower grades than the assigned grade of the student with the significant disability (U.S. Department of Education, p. 18). An out-of-level assessment may only be used to determine performance on alternate achievement standards if the achievement standards were set through a documented and validated process. In addition, the assessment must be "aligned with the State's content standards, promote access to

the general curriculum, and reflect professional judgment of the highest achievement standards" (U.S. Department of Education, p. 18). However, caution is warranted in using out-of-level items unless other technical characteristics of the assessment hold true: (a) out-of-level items should be part of a vertically scaled system that allows for a developmental progression across grades, (b) the use of out-of-level items should measure the construct of interest, and (c) the out-of-level item should not perform differently on routine psychometric indicators (item difficulty, etc.) for students of similar ability who are assessed on level and out-of-level (Huynh, Kim, Karvonen, & Schneider, 2006).

Defining alternate achievement without simply borrowing from lower grade-level expectations is possible through at least three strategies: (a) reducing the depth of knowledge for achievement, (b) selecting priorities within the content to be mastered (i.e., less breadth), and (c) identifying specific adaptations and supports the student can use that make the material less complex (e.g., reading the material to the student; providing pictures for a receptive response). One important rule of thumb is to be sure that the expectation is for the student to acquire a response that shows some level of understanding of the academic concept and not just a rote response. For example, selecting the answer on a worksheet that has been color coded, pointing to a picture with hand over hand guidance, or simply being present while a peer completes a project provide no information about the quantity and quality of the content the student has learned. For some students, discriminating between two pictures to show what is/is not the concept may be an important goal (e.g., tornado). Other students may be able to fill in thinking maps with sight words or pictures to describe the concept.

Criterion 4: There Is Some Differentiation in Achievement Across Grade Levels or Grade Bands

Achievement may also focus on grade bands instead of grade levels. In this case, achievement standards must show growth that links to content across the grades within the grade bands (U.S. Department of Education, 2005, p. 21). That is, to document AYP, grade-level standards must still be addressed, even if some of the skills are associated with earlier grade levels. If the planning team is using the ecological inventory process to identify grade-appropriate skills, some change in expectations across grades should occur. It is important that the student not have the same or similar expectation year after year (e.g., identifying numbers to 10). An important resource a state can provide for teachers is a curricular framework that illustrates changing expectations by grades or grade bands. State-level curricular frameworks are recommended by the U.S. Department of Education (p. 27) and several can be found on states' Web sites (Colorado Department of Education, 2005; Kansas State Department of Education, n.d.; Massachusetts Department of Education, 2001).

One of the challenges in linking to the grade level and developing grade-level differentiation is that the grade-level content standards assume mastery of the content of the earlier grades. Students with significant cognitive disabilities typically are not promoted to the next grade level based on mastery of content, but rather on chronological age. Thus, a student may not master the content in fifth-grade math, but may still be expected to learn skills linked to sixth-grade math. Some educators might propose focusing on mastery by using the content standards that are "developmentally appropriate" for the student (i.e., those at a lower grade level). We disagree with this approach because it may require going as low as early childhood standards for high school students with significant cognitive disabilities or inadvertently creating a "prerequisites ceiling" beyond which the student cannot progress. In contrast, we do propose selecting early *skills* to be applied to grade appropriate *content*. For example, students who are at an emergent level of literacy (e.g., acquiring the early skill of finding a picture to show meaning) may use this skill to address the content of the grade level through adaptations and supports (e.g., finding a picture that shows the main idea of a story in elementary school). This early skill can also be developed across the grades (e.g., using pictures to show the themes or sequence of a story by middle school).

Addressing Three Challenges: Evidence for Practice, Student Characteristics, and Alignment

Current federal policy provides a foundation for understanding the concept of promoting access to the general curriculum with links to grade-level content for students with significant cognitive disabilities. In contrast, at least three critical issues must be addressed through other resources. The first is the identification of research to guide this practice. Second, given that research on teaching this population academic skills linked to grade-level content does not yet exist, what empirically based guidelines can be found for how to proceed? Third is the issue of evaluating the alignment of instruction and assessment with state standards. Professionals often engage in creative thinking to extend or transform state standards into skills that are feasible for this population to learn. What should be the boundaries on this transformation? When do they become something other than the original language arts or math construct?

Evidence for Practice Challenges

Most academic content can be categorized by strands or components of learning. For example, the National Reading Panel (NRP, 2000) identified five essential components of reading instruction: (a) phonemic awareness, (b) phonics, (c) fluency, (d) vocabulary, and (e) comprehension. The National Council of Teachers of English (1996) identified 12 standards that focus on the range of student readings; their comprehension

strategies; competence in communication, including a respect for diversity; and skill in conducting research and using informational and technological resources. Most states organize math content standards to include the content (e.g., number and operations, algebra, geometry, measurement, and data analysis and probability) and process standards (e.g., problem solving, reasoning and proof, connections, communication, and representation) of the National Council of Teachers of Mathematics (NCTM, 1989). The National Science Education Standards (National Research Council, 1996) identified eight categories of content standards, including physical science, life science, and earth science. In contrast, academic research with students who have significant cognitive disabilities focuses almost entirely on sight words and the use of money (functional skills), rather than on the academic skills more typical of general education state standards (Browder, Ahlgrim-Delzell, Courtade-Little, & Snell, 2006). In a comprehensive review of 128 research studies on teaching reading to students with significant disabilities, Browder, Wakeman, Spooner, et al. (2006) found that nearly all focused on sight words. Thus, there is undue focus on only one (i.e., vocabulary) of the five major components of reading identified by the NRP as being important to overall reading ability. Similarly, only a small amount of the research on mathematics for this population has focused directly on NCTM standards (Browder, Spooner, et al., in press), and there are very few science studies at all (Spooner, DiBiase, & Courtade-Little, 2006). Overall, this research shows that this population can learn academic skills, but research to guide teaching academic skills linked to grade-level content is virtually nonexistent. Given this lack of evidence to guide practice, guidelines must be derived from the research on skill acquisition in general to the challenge of teaching grade-linked academic skills.

It is important to realize that while evidence on teaching functional life skills to this population is now well established (Snell, 1997), few studies existed when Lou Brown and colleagues (1979) first proposed a functional model. Now, research on teaching grade-linked academic content is needed. What did exist then, and is now substantially expanded, is research on effective instruction for this population. This research can be used to develop evidence-based practice for teaching academic skills by doing as follows: (a) teaching prioritized skills with systematic prompting and fading; (b) teaching students skills to generalize; and (c) promoting access through the use of materials, activities, and settings typical of general education.

Most research on skill acquisition for this population is based on applied behavior analysis including defining a target response and shaping the response using systematic prompting and differential reinforcement. Nearly all of the academic research with this population has focused on specific target behaviors (e.g., matching words to pictures, counting) that were taught repeatedly within and across days with systematic prompting and feedback (e.g., Browder & Minarovic, 2000; Denny & Test, 1995; Doyle & Gast, 1990; Test, Howell, Burkhart, & Beroth, 1993.) Generalization to new material and contexts can be taught systematically (MacDuff, Krantz, & McClannahan, 1993; Mechling & Gast, 2003) but should not be assumed for any individual student, since each student's abilities and disabilities necessitate individual planning for meaningful instruction.

The need for direct, repeated instruction on highly prioritized and specific skills contrasts sharply with the brisk pace and breadth of content of the general curriculum. The need exists to find ways to teach target skills that have utility across this rapidly moving curriculum. One direction from current research is to focus on pivotal responses. In their research with students with autism, Koegel, Koegel, Shoshan, and McNerney (2001) found that students who learned to self-initiate (a pivotal behavior) had more favorable post intervention outcomes. In addition, Koegel, Carter, and Koegel (2003) taught students a self-initiated query ("What's happening/What happened") as a pivotal response to facilitate the use of morphemes. Although pivotal responses have not been applied to accessing grade-level content in current research, educators may build on this evidence by selecting priority responses that have the most utility for participating in academic learning of the grade level. For example, the pivotal response of being able to select a picture or an object to summarize the main idea is useful in reading, math, science, or social studies. Similarly, alternate assessments can rarely sample all state standards for a grade level, but may be able to focus on how students apply pivotal skills to selected content. Two cautions needed in using pivotal responses are that these responses must be meaningful and motivational to the student, and that the scope of generalization must be defined. Students are not likely to maintain or generalize a skill like picture selection unless the context gives it meaning. For example, the student may need to achieve some critical effect in identifying the picture (e.g., identifying the parts of a plant results in getting to water the plants or going outside to find plants). The scope of generalization also needs to be defined. For example, will the plants be ones found in the student's home region? Undefined generalization will probably not be useful for instruction or assessment. A student who can identify the parts of a plant using a picture would not necessarily be able to find the parts of an insect unless trained to do so.

Across years, students may grow vertically in applying skills to more advanced academics. For example, in third grade, the student can find a picture representing the main character, but in high school may use pictures to show the author's point of view or tone of a story. Or, the student might find a picture for the main character after seeing similar pictures in an elementary picture book (e.g., a picture of Max in *Where the Wild Things Are),* but in high school be expected to find a picture for the main character from hearing the story without seeing an illustration. Some students may simply have horizontal growth; that is, they can find the picture like one used to illustrate the story, but over time the stories reflect the changing grade-level themes.

Besides pivotal skills, another method for accessing the general curriculum that can be found in current research is partial participation. In early writing about how to teach functional life skills, Baumgart et al. (1982) proposed that students be taught meaningful participation in activities similar to their same-aged peers. Subsequent research showed that students with complex physical and medical problems could learn new responses to increase their participation in life routines like toothbrushing (Snell, Lewis, & Houghton, 1989) and self-administration of medication (Bosner & Belifore, 2001). Building on research on partial participation, educators might target achievement of some portion of the grade-level content. For example, students may be able to learn the basic plot of an adapted version of a grade-level novel in language arts or the concept of life cycles in science.

Besides using behavioral methods like systematic instruction of target responses and focusing on pivotal or partial participation skills, research on teaching students community skills also provides relevant evidence that students may need opportunities to learn with typical materials, activities, and settings. Early in discussions about teaching functional life skills, experts proposed that students receive instruction within community contexts (Snell & Browder, 1986). In a review of the literature, Westling and Floyd (1990) found that students with disabilities have indeed benefited from instruction in community settings such as restaurants, department stores, grocery stores, banks, and recreational settings. Because daily instruction for all students in relevant community settings was rarely feasible, researchers found that well-constructed simulations of community contexts taught within the school or other relevant educational settings could also produce generalized responses (e.g., Neef, Lensbower, Hockersmith, DePalma, & Gray, 1990; Sowers & Powers, 1995). These simulations typically used as many real-life materials as possible (e.g., actual menus, washing machines) and learning was assessed through community outings to check for generalization outside the simulated setting. Drawing from this research, it may also be important to use as many of the actual grade-level materials, activities, and contexts as possible to promote access to the general curriculum. Resources like books, handouts, laboratory equipment, and other relevant materials may be adapted as appropriate for an individual student's depth of understanding. As mentioned earlier, inclusion in a general education classroom is also an important way to promote access to the general curriculum (Hunt et al., 1994; McDonnell et al., 2002).

Cognitive and Communication Challenges

Besides the challenge of finding evidence to develop grade-linked academic instruction, the nature of students' disabilities also presents a challenge. In this section, we focus on two areas that are especially challenging to academic instruction: cognition and communication. General education curricula often assume cognitive and communication skills that this population does not have. As mentioned earlier, applications of developmental theory are not always useful for this population, because they require using infant and early childhood stages as a frame of reference. This population may also have unique cognitive challenges, such as short-term memory deficits (Kleinert, Browder, & Towles-Reeves, 2005). Additionally, students with significant cognitive disabilities have diverse communication abilities. Many use some type of an augmentative communication system (e.g., picture symbols, manual signing) and may be nonverbal or partially verbal. Others may rely on nonsymbolic communication (e.g., looking at desired objects).

Educators need guidelines for linking to grade-level content that are inclusive of students at various levels of communication proficiency. Browder, Ahlgrim-Delzell, et al. (2006) described three levels of symbol use to consider in planning for general curriculum access: expanded symbolic, early symbolic, and presymbolic. Subsequently, Browder, Wakeman, and Flowers (2006) empirically evaluated a classification schema based on symbolic communication level use with students who had significant cognitive disabilities. Ninety-five teachers of students with significant disabilities rated students' levels of performance on 10 academic tasks. Cluster analysis suggested a range of two to four clusters solutions. Support was found for three clusters: symbolic (abstract), early symbolic (concrete), and pre-symbolic/awareness.

In addition to this preliminary evidence that students can be classified by academic symbolic level, examples of how students acquire symbol use at these levels are available in research on communication. Students at an abstract symbolic level may use assistive technology like a Dynavox or Vanguard and be able to type or select responses with a wide range of vocabulary. Other students may be nonverbal, but have acquired academic symbol systems like recognition of numbers and sight words. For example, research on teaching nonverbal students to read illustrates how having some fluent use of symbol systems can build academic learning (Coleman-Martin, Heller, Cihak, & Irvine, 2005; Heller, Fredrick, Tumlin, & Brineman, 2002).

In contrast, students at a concrete symbolic level are acquiring communication systems consisting of a few symbols. For example, Kozleski (1991) used time delay to teach individuals with severe cognitive and physical impairments to match objects with pictures on a communication board and then to use these pictures to make requests. Similarly, Dyches (1998) used a system of least intrusive prompting to teach four elementary schoolchildren with autism and severe cognitive disabilities to use communication switches. When students have only a small vocabulary of concrete symbols, achievement expectations may differ from those for whom symbols are more abstract. The symbol to be used to express understanding of the academic concept may itself take extensive instruction. For example, a middle school student with significant disabilities may need familiar pictures to understand the concepts of

"lost" or "home" to be used in discussing a story like *Call of the Wild*.

Because not all students learn to use pictures and other symbols, Siegel-Causey and Guess (1988) developed an intervention approach for students who communicate nonsymbolically and have limited intentionality. Wetherby and Prizant (1989) defined intentionality as "the deliberate pursuit of a goal" (p. 77). For example, a student who bangs her spoon when hungry is showing more intention than a student who simply cries. Intentionality is typically measured through behavioral observations (Bates, 1979). Students who do not yet use symbols to communicate will need yet a different expectation for achievement. The student's understanding may need to be assessed with the use of objects paired with symbols or familiar photographs.

Students who have minimal intentionality may not respond to any on-demand assessment. Some students' physical challenges are extensive, making it difficult to judge responses as intentionally communicative rather than as a prelocutionary response (e.g., a cry that is interpreted as discomfort), or that may even be involuntary movement or seizure activity. For these students, assessment and instruction may focus on the level of the student's general response or awareness of the activity. Do the students open their eyes, make a sound, or stay actively awake instead of sleeping? Guess et al. (1988) conducted research showing that assessments of the level of alertness used in infant research could be used to gauge the level of alertness of students with limited responses. In summary, students may use abstract symbolic, concrete symbolic, or presymbolic communication. Some presymbolic students may have limited intentionality. Because most academic content is taught and learned at the abstract symbolic level, educators may need models for how to adapt this content for students who need to show learning using concrete symbols or without symbol use (see example in "Summary and Example" section).

One caution in applying this classification schema is that students' current symbolic level does not necessarily reflect either their receptive understanding or their cognitive ability. Students may be at a presymbolic level due to having inadequate access to assistive technology. For this reason, it is important to include symbols (e.g., words and pictures) in teaching and assessing students at all levels.

Alignment Challenges

Accurate inferences about student achievement and growth over time can only be made when there is alignment between the standards and assessments; from this perspective, alignment has implications for the validity of inferences made on the basis of alternate assessment scores (Bhola, Impara, & Buckendahl, 2003). Investigations of alignment between standards and assessments are related to two sources of validity evidence: test content and response processes (AERA et al., 1999). If an assessment samples only a small range of student knowledge and skills, validity is questioned due to potential construct underrepresentation.

Two challenges that arise in aligning the content of standards and alternate assessments are (1) determining adequate breadth and depth of the content to be prioritized for students with significant cognitive disabilities and (2) determining the extent to which the skill chosen for assessment or instruction has fidelity with the original content. As mentioned earlier, general curriculum content contains multiple strands or domains within each academic content area. Assessments designed for general education students are expected to capture the full range (i.e., assessment items align to most of the domains within a discipline), balance (i.e., assessment items are distributed evenly, or some previously stated proportion of coverage, across the domains of a discipline), and cognitive complexity (i.e., cognitive demand of assessment items are consistent with standards) of knowledge and skills as those reflected in the academic content standards. Test blueprints or tables of specifications are used to guide the development of assessments that meet these expectations.

Procedures for examining alignment between academic content standards and assessment have been a focus since the growth of the standards-based reform movement and the use of large-scale testing as the tool for evaluating progress based on standards. The Council of Chief State School Officers (n.d.) recommends several alignment models that provide statistics describing the degree of alignment between standards and assessments. Some of these have been applied to evaluate the alignment of states' alternate assessments (Flowers et al., 2006; Roach, Elliott, & Webb, 2005; Webb, Tindal, & Wise, 2005). Alignment models with specific benchmarks that indicate "good" alignment, such as those proposed by Webb (1997), may need to be modified for alternate assessments because they were developed to sample the full range of standards, rather than prioritized and simplified extensions of the standards.

In contrast, before using prioritized and simplified extensions of standards for developing either instruction or alternate assessments, consideration needs to be given to how well these extensions align with state standards. First, these extensions should reflect the major domains of content found in national or state curriculum standards. For example, extensions should address the major strands of math content articulated by the NCTM, including number and operations, algebra, geometry, measurement, and data analysis and probability. Second, these extensions should reflect the priority set for the grade level or band. General educators may choose to emphasize certain content more at certain grade levels (Marshall, 2006; Schmidt, Hsing, & McKnight, 2005). For example, number concepts and measurement are heavily emphasized in the K–Grade 5 curriculum, whereas algebra is more predominant in the middle and high school curriculum. Third, any additional prioritization within the curriculum that will be the focus of alternate assessments should be specified for teachers. Educators may hope that if teachers adequately address

the standards, any assessment items given to their students should validly assess the content learned. By contrast, given that one of the characteristics of the population is limited generalization (Westling & Fox, 2004), the scope and balance of academic content and expectations for achievement at each grade level or grade band must be clearly defined to set teaching targets.

In setting these expectations for achievement, consideration needs to be given to cognitive demand, or the cognitive processes required to respond to an assessment item or master an achievement standard. In Webb's (1997) alignment model, "depth of knowledge" includes four levels: (1) recall, (2) skill/concept, (3) strategic thinking, and (4) extended thinking. Although, educators might assume that students with significant cognitive disabilities can only achieve at the most basic cognitive level (i.e., recall), research on alignment has shown that alternate assessments contain items at all depths of knowledge (Flowers et al., 2006; Roach et al., 2005). However, the number of items on the alternate assessment may be skewed toward simpler depths of knowledge than what may be reflected in the general state standards (Flowers et al.).

Teachers may link to higher levels of cognitive demand by providing students with individual adaptations and accommodations based on disability. For example, a student may be able to evaluate content (a high level of cognitive demand) if given a picture rating system. While some simplification of the cognitive demand of the general curriculum may be needed, identifying ways to teach and assess higher order thinking skills is also important to avoid setting expectations too low for some students.

Two other criteria used in evaluating the alignment of assessments and standards are content and performance centrality (Rothman, Slattery, & Vranek, 2002). These indicators go beyond dichotomous (yes/no) judgments about alignment to ratings of the *degree* of match on the basis of content and cognitive demand. Perhaps the most difficult challenge to alignment is to determine when the translation of a standard to an expectation for students with significant disabilities has lost fidelity to the original standard. To guide this linkage, the National Alternate Assessment Center (n.d.) recommends probing three areas to determine if the skill selected for instruction or assessment is "plumb" and "square" with the standard it is intended to sample. First, it is important to ascertain the match between the content area and the assessment item or instructional objective (e.g., Is sorting mail into labeled mailboxes reading?). Second, it is necessary to determine the degree to which the standard and the assessment item or instructional objective are linked (i.e., Is the assessment item closely related to the content standard, weakly related to the content standard, or not related to the content standard?). Finally, the meaningful interpretation or application of the content standard as an assessment item or an instructional objective should be determined. For example, a grade-level reading standard for ninth-grade students might be identifying characteristics of the literary period or historical setting of a text. While making a class presentation (not reading) and identifying five words using tactile cues (reading) do not relate to the standard, reviewing and identifying characteristics of a historical setting using tactile cues (reading) does sample the intended standard.

While these three areas address content centrality, some consideration may also be given to performance centrality. When possible, the focus may be on matching to the same type of performance, which may be viewed through classification schemas of categories of knowledge (Kameenui and Simmons, 1990). Much of the research for students with significant cognitive disabilities has focused on discrimination learning (e.g., Barudin & Hourcade, 1990; Karsh, Repp, & Lentz, 1990; McGee, Krantz, & McClannahan, 1986), which Kameenui and Simmons classify as the simplest form of knowledge. The second level in their schema is the demonstration of a concept. To demonstrate the generalization of a concept, students must appropriately demonstrate a newly learned skill applied to a novel activity. This is different from the type of generalization used in research on functional skills, in which students simply perform a skill across novel materials or contexts. For example, if a student is to show understanding of the concept of "greater than" in mathematics, the student must select the larger amount using different numbers, objects, and activities versus simply pointing to the symbol ">" in three settings. More complex than concepts is the demonstration of rule relationships. For example, to understand the rule that when the long and short hands are on the 12, it is 12 o'clock, the student needs to be able to discriminate the hands of the clock and understand the concept of number.

The goal for performance centrality may be targeting achievement "as close as possible" to the original given that reducing depth of knowledge begs the question of a true performance match. For example, if a standard focuses on critical analysis of a Web site, students might glean information from the Web site (content match) and critique it through expression of preference (yes/no). While the expression of preference might be a form of critique, this simplified response does not necessarily demonstrate understanding of the concepts reflected in the Web site. In contrast, for some students, indicating "do/don't like it" may be considered a close enough performance match and one that is meaningful for the student. For other students, a closer match to conceptual understanding may be targeted, for example, by having the students identify how two Web sites are similar or different or giving a reason to justify a preference. Collaboration with general educators is essential to ensure that neither content nor performance adaptations have lost the original focus of the standard. Professionals with deep knowledge of the content are needed for both IEP team planning and state-level assessment work.

Additional Criteria and a Definition

From the consideration of challenges to linking grade-level academic content, three additional criteria are proposed to

supplement those derived from current federal policy. First, assessment and instruction that links to the grade level promotes learning in the general curriculum through access to the activities, materials, and contexts of the general education setting to the greatest degree possible. The difference between the way a young child will apply early academic skills and the way a middle school student with significant cognitive disabilities should do so is in the choice of materials, activities, and contexts. Instead of preschool books, the older student needs stories adapted from middle school literature. Instead of "show and tell," the middle school student needs a way to do an adapted report, perhaps by using clip art and Microsoft PowerPoint®. Instead of floor play, the middle school student might have the opportunity to participate in a cooperative learning activity in an eighth-grade science class.

Second, the specific achievement targets must maintain fidelity to the original standard through content centrality and, whenever possible, performance centrality. The three areas described earlier recommended by NAAC to determine if the skill selected for instruction or assessment is "plumb" and "square" with the standard it is intended to sample would be applicable to this consideration.

Third, access to the general curriculum that links to grade-level content should be inclusive of students at multiple levels of symbolic communication. As described earlier, we propose three levels: abstract symbolic, concrete symbolic, and presymbolic. Because the option exists to establish multiple sets of alternate achievement standards (U.S. Department of Education, 2005), states may consider having multiple entry points for the alternate assessment system based on students' symbolic levels. Similarly, in planning curricular guides, examples are needed for students who will be learning their first symbols concurrent with academic instruction. A definition of the concept of linking to grade-level content with alternate achievement and the seven criteria are summarized in Figure 1. We assume that the criteria, along with this definition, may change as educators gain increased understanding of this concept through research and practice.

Definition of the Concept Linking to Grade-Level Content With Alternate Achievement

To be linked to grade-level standards, the target for achievement must be academic content (e.g., reading, math, science) that is referenced to the student's assigned grade based on chronological age. Functional activities and materials may be used to promote understanding, but the target skills for student achievement are academically focused. Some prioritization of the content will occur in setting this expectation, but it should reflect the major domains of the curricular area (e.g., strands of math) and have fidelity with this content and how it is typically taught in general education. The alternate expectation for achievement may focus on prerequisite skills or some partial attainment of the grade level, but students should still have the opportunity to meet high expectations, to demonstrate a range of depth of knowledge, to achieve within their symbolic level, and to show growth across grade levels or grade bands.

Criteria for Instruction and Assessment That Link to Grade-Level Content

1. The content is academic and includes the major domains/strands of the content area as reflected in state and national standards (e.g., reading, math, science).
2. The content is referenced to the student's assigned grade level (based on chronological age).
3. The achievement expectation is linked to the grade-level content, but differs in depth or complexity; it is not grade-level achievement. It may focus on prerequisite skills or those learned at earlier grades, but with applications to the grade-level content. When applied to state-level alternate assessments, these priorities are accessible to Individualized Education Program planning teams.
4. There is some differentiation in achievement across grade levels or grade bands.
5. The focus of achievement promotes access to the activities, materials, and settings typical of the grade level but with the accommodations, adaptations, and supports needed for making progress in the general curriculum.
6. The focus of achievement maintains fidelity with the content of the original grade-level standards (content centrality) and, when possible, the specified performance (category of knowledge).
7. Multiple levels of access to the general curriculum are planned so that students with different levels of symbolic communication can demonstrate learning.

FIGURE 1. Definition and criteria for linking instruction and assessment to grade-level content with alternate achievement.

Summary and Example

This article has proposed a definition of the concept of linking to grade-level content with alternate achievement standards and offered seven criteria for evaluating this link when considering assessment or instruction. Figure 2 illustrates options for accessing grade-level content based on a hypothetical state standard in which students are expected to compare and contrast elements of biographies.

Depending on the student's level of symbol use, materials are adapted and instructional activities are designed to require different levels of cognitive demand. For example, a student who can read sight words (abstract symbolic communication level) may work with an adapted version of a biography used by students who study the general curriculum. While the general education student may be expected to engage in cognitively complex activities (e.g., synthesis and evaluation) to become proficient in the standard, the student with concrete symbolic communication might use pictures and objects to retell a life story. At the other end of the spectrum, a student at the presymbolic level may be expected to start by selecting objects used to tell his or her own story. The interaction of knowledge form and cognitive demand yield a continuum of options for overall task complexity that allow entry for the full range of students who are assessed on alternate achievement standards.

Figure 2 also provides an example of instructional content and cognitive demand that completely fails to access the standard. The activity may not access the state standard about biographies because it does not tap the idea of a life story, or because it does not use biographical materials, or because there is no higher expectation for student response other than passive participation. To avoid the potential pitfall of teaching something unrelated to the general curriculum, special educators and content area experts should carefully consider state content standards and grade-level expectations and collaborate to create meaningful curricula that focus on the constructs intended in the state standards, while maintaining the highest possible expectations for the achievement of all students with significant cognitive disabilities.

In summary, creating access to general curriculum that links to grade-level content requires first understanding the content. We propose a definition and seven criteria for this linkage (see Figure 1), four of which were derived from current federal policy and three of which stem from consideration of the unique characteristics of this population. In this article, we have tried to achieve three goals. The first was to define criteria that can be used to plan alternate assessments. We currently are using the criteria shown in Figure 1 as the conceptual framework for conducting alignment studies on alternate assessments. An example of this application with a state's alternate assessment system can be obtained from the first author. In addition to evaluating their applicability to state alternate assessments, additional research is needed to determine how self-advocates, parents, and teachers value and define access to the general curriculum. Do these criteria have meaning to these stakeholders?

A second goal was to provide guidance for instructional planning. The examples given in this article should not be viewed as prescriptions of what to teach to access the general curriculum, but simply as examples. Some examples provided here may not be appropriate for the individual priorities and needs of some students, or may not be linked to some states' academic content standards. To access the general curriculum requires ongoing collaboration with general educators and parents to identify these links and priorities. Although individualization will always be required, models are also needed for general curriculum access that can demonstrate how to do four things: (a) balance academic and functional needs, (b) identify grade-appropriate targets, (c) develop IEPs that link to state standards, and (d) teach skills that are meaningful to students as illustrated through preference assessments and generalized use.

The third purpose of this article was to create a conceptual framework for building consensus about general curriculum access and conducting future research. The need exists for national discussions about the outcomes expected for this population. Research is also needed to capture the academic achievements that are implied by proficiency scores on alternate assessments in the states. What specific skills are students demonstrating? How well do these align with state academic content standards? Are there differences in skills demonstrated across grades or grade bands? Are there differences in which subgroups of students with significant cognitive disabilities show proficiency? For example, can students whose communication skills are at the presymbolic level demonstrate proficiency? Given the limited research in academic learning for this population, current alternate assessments provide a rich context for gaining more information about what this population can achieve.

Research is also needed illustrating ways to teach grade-linked academic skills to this population. After conceptual writing about the need for a functional approach (Brown et al., 1979), the number of studies focused on teaching this content dramatically increased in subsequent years. While there continues to be the need for research on how to teach functional skills, there also is an urgent need for academic intervention research for this population. An important beginning point is to determine the extent to which the instructional strategies found effective for other types of skills (e.g., systematic prompting of task-analyzed skill) can be applied to academics and what new strategies are needed. Research also is needed to illustrate what to teach. Extending state standards for students at concrete symbolic and presymbolic levels requires time and creativity. Educators need examples of skills that have been validated with general educators as being linked to state standards, that can be effectively taught, and that students can apply. Future research also needs to address the context for this instruction. When working in general education classes, the focus is on adapting the curriculum for the student with

Ninth-Grade-Level Standard: "Compare and Contrast the Elements of Biographies"

Highest Level of Symbol Use ⟶ Lowest Level of Symbol Use

	Grade level					
	Typical expectation (Not adapted)	*Abstract symbolic*	*Concrete symbolic*	*Presymbolic*		*Off the chart—Not linked to grade-level standard*
Student symbol use	Reads/Writes at or near grade level	Reads sight words/ picture cues; May count and recognize numbers	Recognizes pictures; May also use range of objects symbolically	Uses objects or gestures to communicate; Relies on immediate context to use object symbolically (e.g., shows cup to drink)		
Matching content; Adapted for symbol level	Biographies of well-known Americans	Adapted text; Same biographies in picture form with sight word captions; Text supported with symbols	Same biographies; Pictures for biographies; Adapted text read aloud	Adapted biographies read aloud; Familiar objects to supplement text; Begin with family stories then bridge to strangers		Not biographies; Pictures of unrelated people with no story
Matching form of knowledge	Concept: Compares and contrasts elements of biographies	Makes comparison of two life stories by putting pictures into circles for "same" and "different"; Fills in sight words	Makes comparison of two life stories by putting pictures/objects into circles for "same" and "different	Selects objects for biography display, first familiar (family) and then stranger; Matches objects to show "same"		Not focused on concept of life stories (e.g., "Show me the picture of house" vs. "Where did he or she live?")
Matching for cognitive demand	Synthesis level: Compares and generates answer	Potentially lower than grade-level application	Potentially lower than grade-level application	Potentially lower than grade-level recall		Requires no thought (e.g., teacher guides student's hand)
	Typical expectation (Not adapted)	*Expanded symbolic communication*	*Early symbolic communication*	*Presymbolic communication*		*Off the chart—Not linked to grade-level standard*
Complexity embedded in format	Reads biography silently; Answers questions about comparison; Composes biographies with all elements	Reading is limited to pictures and sight words; Needs to write sight words only	Relies on picture discrimination; Read aloud simplifies listening comprehension with adapted text; No writing needed	Objects are more concrete; By labeling objects, student gets incidental teaching on text (if visually impaired, may include Braille or raised symbols)		No text provided even incidentally; No use of term *biography* to label student's work

FIGURE 2. Example for creating general curriculum access across symbolic levels.

significant cognitive disabilities. Research is needed to determine to what extent special educators can both replicate and adapt the general curriculum in self-contained contexts.

Finally, and most importantly, research is needed on the overall impact of the new emphasis on academic achievement for this population, on how teachers can balance this new emphasis with ongoing needs for acquiring functional skills, and on the impact of academic instruction on the transition to adult living. The research on outcomes from academic instruction will be difficult because transition outcomes for this population, while improving, are still disappointing. In contrast, it is essential that this new focus not impair progress toward community access like paid employment and using neighborhood resources. Because studying outcomes will take time, it is important in the short term for students and their parents to have a voice in setting priorities. Research is needed on how parents value the types of skills being taught to access general curriculum content and how students respond to these opportunities. If, as intended, teaching to academic standards improves the "activity of living," this benefit should become evident to students and their families.

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