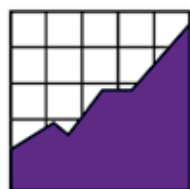


Common Misperceptions and Research-based Recommendations for Alternate Assessment based on Alternate Achievement Standards



NATIONAL
CENTER ON
EDUCATIONAL
OUTCOMES

In collaboration with:

Council of Chief State School Officers (CCSSO)

National Association of State Directors of Special Education (NASDSE)

Supported by:

U.S. Office of Special Education Programs

Synthesis Report 73

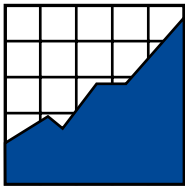
Common Misperceptions and Research-based Recommendations for Alternate Assessment based on Alternate Achievement Standards

Rachel Quenemoen • Jacqui Kearns • Mari Quenemoen •
Claudia Flowers • Harold Kleinert

February 2010

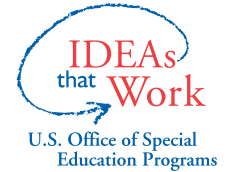
All rights reserved. Any or all portions of this document may be reproduced and distributed without prior permission, provided the source is cited as:

Quenemoen, R., Kearns, J., Quenemoen, M., Flowers, C., & Kleinert, H. (2010). *Common misperceptions and research-based recommendations for alternate assessment based on alternate achievement standards* (Synthesis Report 73). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.



**NATIONAL
CENTER ON
EDUCATIONAL
OUTCOMES**

The Center is supported through a Cooperative Agreement (#H326G050007) with the Research to Practice Division, Office of Special Education Programs, U.S. Department of Education. Additional support for targeted projects, including those on English language learners, is provided by other federal and state agencies. The Center is affiliated with the Institute on Community Integration at the College of Education and Human Development, University of Minnesota. Opinions expressed herein do not necessarily reflect those of the U.S. Department of Education or Offices within it.



The development of this report was also supported, in part, by funding from the National Alternate Assessment Center (NAAC).



NCEO Core Staff

Martha L. Thurlow, Director	Kristi K. Liu
Deb A. Albus	Ross E. Moen
Jason R. Altman	Michael L. Moore
Manuel T. Barrera	Rachel F. Quenemoen
Laurene L. Christensen	Christopher Rogers
Christopher J. Johnstone	Dorene L. Scott
Jane L. Krentz	Miong Vang
Sheryl S. Lazarus	Yi-Chen Wu

National Center on Educational Outcomes
University of Minnesota • 207 Pattee Hall
150 Pillsbury Dr. SE • Minneapolis, MN 55455
Phone 612/626-1530 • Fax 612/624-0879
<http://www.nceo.info>

The University of Minnesota shall provide equal access to and opportunity in its programs, facilities, and employment without regard to race, color, creed, religion, national origin, gender, age, marital status, disability, public assistance status, veteran status, sexual orientation, gender identity, or gender expression.

This document is available in alternative formats upon request.

Executive Summary

In 1997 the newly authorized Individuals with Disabilities Education Act (IDEA) required states to provide an alternate assessment for students who could not participate in the general assessment, even with accommodations [612(a)(17)(A)]. A 2003 regulation for the No Child Left Behind Act of 2001 (NCLB) permitted states to use results from alternate assessments based on alternate achievement standards (AA-AAS) in Adequate Yearly Progress (AYP) calculations. AA-AAS had to be linked to grade-level content standards but could be reduced in depth, breadth, and complexity (U.S. Department of Education, 2004). AA-AAS are designed so that students with the most significant cognitive disabilities can be included in large-scale accountability testing and to promote their access to the same interesting and challenging curriculum as their peers.

In our collaborative work with states and educators on AA-AAS, staff at the National Alternate Assessment Center (NAAC) and the National Center on Educational Outcomes (NCEO) have encountered several common misperceptions about these assessments and the students who are assessed using AA-AAS. This report explores these misperceptions, and proposes research-based recommendations to address them.

The common misperceptions we discuss in this report relate to three major themes: (a) the characteristics of students who participate in AA-AAS; (b) the content that should be taught and assessed by teachers; and (c) issues regarding the purpose and the validity of AA-AAS outcomes. Since the re-authorization of IDEA, the passage of NCLB, and the 2003 regulation on AA-AAS, the field has been forced to change very quickly. New strategies have been under development even as they have been required. Educators, policymakers, and researchers may still have questions and concerns about the purpose and the consequences of AA-AAS. The goal of this paper is to provide information for examining assumptions and misperceptions about AA-AAS as well as assumptions and misperceptions about the students who participate in AA-AAS. For each misperception, we refer to the recent literature on assessment, curriculum, and instruction for students with the most significant disabilities to support our analysis and recommendations.

Table of Contents

Overview	1
Common Misperception #1.....	2
Common Misperception #2.....	3
Common Misperception #3.....	5
Common Misperception #4.....	6
Common Misperception #5.....	7
Common Misperception #6.....	8
Common Misperception #7.....	9
Common Misperception #8.....	10
Common Misperception #9.....	11
Common Misperception #10.....	12
Conclusions.....	14
References.....	15

Overview

Alternate assessment based on alternate achievement standards (AA-AAS) represents a dramatic shift in thinking about educational expectations and opportunities for students with the most significant cognitive disabilities.¹ These students have in the past been taught a separate curriculum from their peers, often in separate settings. Now, they are expected to participate and make progress in the same academic curriculum and activities as their same-age classmates. Large-scale assessments like the AA-AAS promote school, district, and state accountability to make sure that all students, including this small group of students with the most significant cognitive disabilities, have access to a rigorous, challenging, and interesting standards-based curriculum.

With this shift in academic expectations for students with the most significant cognitive disabilities, many teachers, parents, researchers, and policymakers have expressed some confusion or concern. Curriculum and instruction for these students have traditionally emphasized important functional life-skills such as self-care and social skills, and some stakeholders worry that academic instruction will eliminate the time and resources needed for these functional skills. Others are skeptical that any assessment for a group of students with such widely diverse learning characteristics could ever achieve sufficient technical quality to provide trustworthy results.

Initial research indicates that including students with disabilities in large-scale accountability testing results in higher expectations, improved instruction, and improved performance for those students (Cortiella, 2007; Kleinert, Kennedy, & Kearns, 1999; Quenemoen, Lehr, Thurlow, & Massanari, 2001; Towles-Reeves, Garrett, Burdette, & Burge, 2006; Ysseldyke, Dennison, & Nelson, 2003). An educational system that holds high expectations for students with significant cognitive disabilities will ultimately benefit all students. The often cited observation that “what gets tested gets taught” can be modified, based on past practices of excluding many students with disabilities, to “who gets tested gets taught” (Erickson, Thurlow, & Ysseldyke, 1996; McGrew, Vanderwood, Thurlow, & Ysseldyke, 1995; Thurlow, Nelson, Teelucksingh, & Ysseldyke, 2000). This report is intended to inform policy and practice on assessment, curriculum, and instruction for students with the most significant disabilities and to raise questions for further research and reflection.

The misperceptions were identified over a period of two years through technical assistance activities provided through the National Center on Educational Outcomes (NCEO) and the National Alternate Assessment Center (NAAC). Technical assistance staff assembled the comments and questions heard from the field, and then asked researchers and advisors at NAAC and NCEO to review and comment on them. From this discussion, the comments were clustered first into

¹ The term “significant cognitive disabilities” is used to refer to students who participate in alternate assessments based on alternate achievement standards. This term overlaps the population of students with severe developmental disabilities, but it is not synonymous.

several groups and then into ten general statements that captured key misperceptions. These were again brought to the NAAC and NCEO researchers and advisors who identified extant research related to each of these ten general misperceptions. Based on the research, NCEO and NAAC staff developed specific recommendations to address each misperception in the field. This report addresses some of the most common questions and concerns we encounter when working with educators, policymakers, and families on AA-AAS, and reflects what we know about best practices in assessment, curriculum, and instruction.

Common Misperception #1—Many students who take the AA-AAS function more like infants or toddlers than their actual age, so it makes no sense for schools to be held accountable for their academic performance.

Some people assume that these students have such severe disabilities that the students are unable to learn academic content. Sometimes, this misperception is rooted in the assumption that all students must progress through typical infant and preschool skill development before any other academic instruction can occur. Notions of developmental state or “mental age” were common in special education through the 1970s. Psychology and education specialists believed that all people must pass through discrete, linear, developmental stages in order to move from childhood to adulthood. According to this theory, a student with a significant cognitive disability who has not mastered certain pre-academic, social, emotional, or linguistic skills for a certain developmental stage must continue to work on a curriculum designed for that stage. For instance, a 14-year-old deemed to be the “mental age” of 4 would continue to use 4-year-old materials in schools and would receive instruction limited to skills taught through those materials.

In the 1980s, special educators realized that these students were able to master many functional skills appropriate for their age regardless of whether they had mastered all lower developmental skills. Special education experts such as Brown, Nietupski, and Hamre-Nietupski (1976) began to challenge this developmental paradigm by arguing that all students can benefit from age-appropriate material and activities. Subsequent studies suggested that schools should teach students with severe disabilities important real-world, functional skills to prepare them to live fully in their communities. This caused a shift in thinking that resulted in a powerful, age-appropriate functional curriculum for these students.

In recent years, we have demonstrated that these students can learn grade-appropriate academic skills in addition to functional skills (Browder & Spooner, 2006) and benefit from participating with grade-level peers (McDonnell, Mathot-Buckner, Thorson, & Fister, 2001; Roach & Elliott, 2006; Ryndak, Morrison, & Sommerstein, 1999). Learner characteristics data from many states show us that most students who participate in AA-AAS have basic literacy and numeracy skills (Almond & Bechard, 2005; Kearns, Towles-Reeves, Kleinert, Kleinert, & Thomas, in press).

These students are able to learn targeted grade-appropriate academics to an alternate achievement level, even when they have not mastered all earlier academic content. Today, most experts agree that the notion of developmental stages should not prohibit students from working on both important functional skills *and* age-appropriate academic skills (Hughes & Carter, 2008; Kleinert, Browder, & Towles-Reeves, 2009; Spooner & Browder, 2006). In fact, researchers have shown that students can benefit from integrating a functional curriculum with academic skill learning (see Browder & Minarovic, 2000; Collins, Kleinert, & Land, 2006; Collins & Stinson, 1995; Gardill & Browder, 1995; Kleinert, Collins, Wickham, Riggs, & Hager, in press; Lalli & Browder, 1993; McDonnell, 1987; Westling, Floyd, & Carr, 1990).

We know now that waiting until these students are “ready” by mastering all earlier skills means they “never” will be given access to the skills and knowledge they can learn. We do not expect second-graders to master personal hygiene before we teach them to read; neither should we hold back literacy instruction to students with disabilities who are still working on basic functional skills (Spooner & Browder, 2006).

Educators must also be careful not to assume that a student’s current demonstration of cognitive or communicative ability is fixed or absolute. Experts on students with the most complex cognitive and medical challenges caution that a student’s current level of communication does not necessarily represent the upper limit of that student’s capacity. Students who appear to have limited symbolic communication may benefit from assistive technology or other services to allow them to express their cognitive ability (Browder et al., 2007; Kearns et al., in press; Towles-Reeves, Kearns, Kleinert, & Kleinert, 2009).

Research-based Recommendation #1:

Build accountability systems to ensure that all students who are eligible for the AA-AAS have access to and learn academic content expected for their same-age typical peers, to an appropriate but challenging alternate achievement standard.

Common Misperception #2—Many students who participate in AA-AAS have life-threatening medical conditions or are not able to communicate.

Similar to developmental assumptions, sometimes people assume that all students who participate in AA-AAS face multiple medical and cognitive challenges that go well beyond what educators can address; they assume that many of these students cannot speak, hear, or communicate in any way. However, most students who are eligible for AA-AAS (more than 90%) have effective communication skills with or without assistive devices. Approximately 10% of students

who participate in AA-AAS communicate on a pre-symbolic level (without intentional use of language, pictures, objects, or signs). Students in this small group (less than 0.1% of the total population of students) may be able to improve their communication if given opportunities to express themselves, including the use of assistive and augmentative communication devices.

Researchers at the University of Kentucky recently gathered data about the characteristics of students taking the AA-AAS in seven states with a Learner Characteristics Inventory (Kearns et al., in press). They found that only 10.3% of these students were unable to communicate with pictures, objects, or signs, while another 17.3% could communicate deliberately using non-standardized means of communication such as gestures, pictures, objects, or signs. On the other hand, over 70% of students who participate in AA-AAS in these states could communicate with symbolic language including verbally and with Braille. In a similar study, the Colorado Alternate Assessment Collaborative (Almond & Bechard, 2005) found that of 165 students eligible for the AA-AAS in their study, nearly 40% used 200 words or more to communicate, while only 10% did not use words in functional communication. Kearns et al. (in press) also looked at school attendance and found that 84%–92% of students attended at least 90% of school days, while only 1–3% missed 50% or more of school days due to illness or (nearly as often) other factors. The group of students who takes the AA-AAS may include some with fragile medical conditions, but most students in this group attend school regularly.

The field of severe disabilities has worked from the “least dangerous assumption” for decades (Donnellan, 1984). Even for the less than 10% of students with disabilities who currently do not use symbolic communication, we must teach assuming that they can build effective communication strategies. The categories of “pre-symbolic” or “emerging symbolic” communication are not fixed diagnoses, but serve as markers for where a student is at that moment in time. For some students, learning to manipulate switches to express preferences, tape recorders to access interesting literature or music, or eye movements to communicate intention can open the door to increased learning, expression, and participation in academic and everyday life.

Research-based Recommendation #2:

For the small group of students who initially demonstrate a lack of symbolic communication (about 10% of students who take the AA-AAS), educators should persistently and systematically seek multiple and varied communication strategies including assistive technology to permit these students to learn and then to show what they know on an AA-AAS.

Common Misperception #3—Students in the AA-AAS can learn only rote academic skills, so AA-AAS should reflect only these skills.

Only recently have scholars begun to understand applications of academic content for students with significant cognitive disabilities. In the content area of reading, most research has employed a behaviorist approach with a focus on sight words and functional reading in daily life settings (Browder, Courtade-Little, Wakeman, & Rickelman, 2006; Browder, Wakeman, Spooner, Ahlgrim-Delzell, & Algozzine, 2006). Recent research has begun to explore how students with significant cognitive disabilities learn a broad spectrum of literacy skills, including and beyond sight words (Browder, Trela, & Jimenez, 2007; Browder, Ahlgrim-Delzell, Courtade, Gibbs, & Flowers, 2008), though cultural attitudes and expectations remain a barrier to providing access to literacy instruction for these students (Kliewer, Biklen, & Kasa-Hendrickson, 2006). In mathematics, high quality evidence-based research published between 1975–2005 nearly always focused on time management, money, and basic counting skills, while studies on how these students can access algebra, geometry, and data analysis and probability were minimal or non-existent (Browder, Spooner, Ahlgrim-Delzell, Harris, & Wakeman, 2008). Courtade, Spooner, and Browder (2007) did a similar review of science instruction for students with the most significant cognitive disabilities. They found only 11 studies, most of which had a narrow focus on the “science in personal and social perspective” standard.

Education experts have begun to explore the paths that typically developing students take toward competency as measured by large-scale assessments (Pellegrino, Chudowsky, & Glaser, 2001); new research is needed to “map” how students with significant cognitive disabilities build competence as well. Researchers now are finding strong evidence of academic skill and knowledge development among students who participate in AA-AAS, including abstract concepts and transfer of learning (Browder, et al., 2007; Jimenez, Browder, & Courtade, 2008). For instance, students who have had little prior exposure to literacy may benefit from highly structured and systematic instruction using age-appropriate adapted literature and strategies such as story-based lessons (Browder, Trela, & Jimenez, 2007) or working on sequencing by supplementing text with pictures or objects (Downing, 2007). This principle applies not only to students with significant cognitive disabilities, but to students with a range of other disabilities including vision impairment or dyslexia. A student who does not have phonemic awareness, for instance, may still be able to develop advanced literary skills with the help of assistive technology (Johnstone, Thurlow, Thompson, & Clapper, 2008; Thompson, Johnstone, Thurlow, & Clapper, 2004).

Much research remains to be done on teaching academics to students who participate in AA-AAS, but anecdotal and case study evidence indicates that we must retain a “principle of uncertainty” about what students may be able to do (Kliewer & Biklen, 2001). Teacher attitudes that some students will not benefit from academic instruction such as literacy training pose a significant

barrier to student access to those skills (Downing, 2007; Katims, 2001; Zascavage & Keefe, 2004). As long as we are not sure what many students with significant cognitive disabilities are capable of, we must operate on the principle of the “least dangerous assumption” (Donnellan, 1984; Jorgensen, 2005). In Massachusetts, where alternate assessments were developed relatively early, teachers have been “surprised and amazed” at what their students can do (Wiener, 2005).

Research-based Recommendation #3:

Build AA-AAS approaches based on a model of academic content development that allows these students to demonstrate a range of grade-level content that their peers are also learning and demonstrating.

Common Misperception #4—The AA-AAS has eliminated the teaching of important functional skills.

People sometimes assume that the addition of academics to the assessment and accountability systems for students with significant cognitive disabilities means that there is limited time for teaching functional skills like self-care, community participation, and safety. They believe that there is not enough time in the day to do both academics and functional skills. While researchers continue to emphasize the importance of teaching functional skills to improve students’ quality of life (Turnbull, Turnbull, Wehmeyer, & Park, 2003), many experts agree that teaching age-appropriate academic material has positive outcomes even for students with the most significant disabilities. In fact, researchers have shown examples of how academic and functional skills can be taught concurrently (Collins, Kleinert, & Land, 2006; Kleinert, Collins, Wickham, Riggs, & Hager, in press), and most districts provide a curriculum that is a mix of academic and functional skills (Browder, Spooner, Ahlgrim-Delzell, et al., 2003).

The academic content required by the AA-AAS does not replace other important individual student goals. Even while students work toward mastering academic skills to be assessed by AA-AAS, each student’s Individualized Education Program (IEP) may include additional individual goals for social, self-care, and other functional skills (U.S. Department of Education, 2005). Alternate assessments are designed to make sure schools are teaching students with the most significant cognitive disabilities according to high academic standards. A student’s IEP, on the other hand, also can include instruction on important functional and social skills.

No research has shown that students must learn functional skills before they can master academic skills, nor that academic and functional instruction are incompatible (Browder, Wakeman,

Flowers, Rickelman, Pugalee, & Karvonen, 2007). Many teachers have found that blended instruction in academic and functional skills yields better results for both. Some functional skills, such as communication and social skills, can be easily aligned with academic content such as literacy. The line between academics and functional instruction begins to blur as teachers and parents discover how truly useful and satisfying increased literacy and numeracy skills are for these students, for quality of life and enjoyment, for integration into the community, school, or adult life, and for future employment (Browder, Ahlgrim-Delzell, Pugalee, & Jimenez, 2006; Ward, Van De Mark, & Ryndak, 2006).

Research-based Recommendation #4:

Provide training and support to teachers so that they can effectively merge academic and functional instruction where appropriate and so that they understand the vital importance of academic skills and knowledge to full participation in family, school, and community life.

Common Misperception #5—AA-AAS must cover all of the same content that is on the general assessment for typical peers.

Although AA-AAS should be linked to general education content standards, federal regulations permit states to define the appropriate depth, breadth, and complexity of content coverage. The AA-AAS “should be clearly related to grade-level content, but it may be restricted in scope or complexity or take the form of introductory or prerequisite skills” (U.S. Department of Education, 2005). But, states must show that these content priorities truly “raise the bar” of historically low expectations and are clearly linked to the content that typical students in the same grade should know and be able to do (U.S. Department of Education, 2004). This is a shift for teachers who do not have experience with this content. Many stakeholders and advisors to state assessment programs may need training and support to build understanding of what is possible. Stakeholder and advisor understanding can ensure that AA-AAS are linked to the student’s grade (or grade band) but are reduced in scope and complexity from the general education assessment.

Many researchers are working on ways to explore how grade-level academic content might be assessed at different achievement levels (Browder, 2001; Browder et al., 2002; Kleinert & Kearns, in press; Kleinert & Kearns, 2001; Thompson, Quenemoen, Thurlow, & Ysseldyke, 2001). Researchers have used standard evaluative techniques to assess the alignment between state AA-AAS and state content standards, finding that, in fact, they are aligned without representing the full depth and breadth of the standard (Flowers, Browder, & Ahlgrim-Delzell, 2006; Roach,

Elliott, & Webb, 2005). Massachusetts pioneered work on aligning alternate assessments with grade-level content standards. Massachusetts worked to identify the “‘essence’ of each standard, and to develop ‘entry points’ at increasing levels of complexity” in collaboration with content area experts (Wiener, 2005).

The recently developed Links for Academic Learning (LAL) manual presents 10 criteria to test the alignment of AA-AAS with the standards-based general curriculum, based on what we know about students with significant cognitive disabilities, what we know about high quality academic instruction for these students, and the flexible nature of the AA-AAS (Flowers, Wakeman, Browder, & Karvonen, 2007). The LAL manual provides guidelines to ensure that students who qualify for the AA-AAS are tested on challenging academic content, aligned to grade-level general curriculum, but with reduced depth and breadth. A properly aligned AA-AAS should allow for achievement levels appropriate for students with significant cognitive disabilities, while continuing to require access to challenging academic content.

Research-based Recommendation #5:

Provide training to teachers, and to other key assessment system stakeholders and advisors, on what research suggests these students are able to know and do when given the opportunity.

Common Misperception #6—Most AA-AAS are entirely individualized and differ for each student.

Because of the varied learning characteristics of students who take the AA-AAS, this test must be more flexible than most general assessments. A good AA-AAS allows a defined amount of flexibility in administration of the items and tasks so that these students have the opportunity to show what they know. However, AA-AAS must still reflect professional understanding of standardization and comparability. Furthermore, a good AA-AAS incorporates training, oversight, and structures to balance flexibility with standardization of procedures. Ongoing monitoring is important to ensure the assessments are administered, scored, and reported as intended.

The comparability of AA-AAS results is key to their function as large-scale accountability measures (Quenemoen, Rigney, & Thurlow, 2002). While IEPs can be entirely individualized, the AA-AAS must provide results that are comparable across schools and districts. The challenge is to allow flexibility for students of varying ability levels while maintaining high standards for all children and the comparability needed for system accountability (Gong & Marion, 2006). AA-AAS may test comparable content, or ask students to perform comparable activities, while

allowing for flexibility to provide various accommodations. Validity arguments can rely in part on traditional psychometric analysis, but should also incorporate new or modified evidence-based evaluative methods to account for intentional flexibility (Gong & Marion, 2006; Shafer, 2005). Ultimately, the purpose of the AA-AAS is not to hold individual students accountable, but to hold schools accountable for providing a challenging and meaningful education for all students.

Research-based Recommendation #6:

All AA-AAS scores should indicate whether the student is proficient in an academic domain through procedures that allow flexibility but control for possible sources of error.

Common Misperception #7—An AA-AAS measures teacher performance in compiling attractive portfolios or examples rather than measuring student academic performance.

Some teachers have expressed the concern that putting together “good-looking” portfolios or choosing student examples that make them look good will artificially produce higher scores, regardless of the quality of instruction or amount of student progress. Some researchers have found that teachers who have greater knowledge and competence in assembling portfolios do, in fact, produce better student scores (Johnson & Arnold, 2007). However, a good AA-AAS is designed according to standards of validity and reliability. On a well-designed test, regardless of the format, test scores should not be sensitive to factors that are irrelevant to the construct being tested. An assessment that is sensitive to external factors such as “good looking” portfolios, regardless of the actual content, is simply a poorly-designed assessment. Any assessment must control for differences in test administration or teacher behavior, and the scoring should focus on independent student performance.

That said, students of successful teachers who are well trained in various aspects of instruction and assessment *will* tend to have higher scores (Horvath, Kampfer-Bohach, & Kearns, 2005). Research has shown that teachers who are trained in instructional practices and using assessment data to make instructional decisions produce better student scores on alternate assessments (Browder, Karvonen, Davis, Fallin, & Courtade-Little, 2005; Karvonen, Flowers, Browder, Wakeman, & Algozzine, 2006). Teachers who routinely integrate elements of the assessment into daily instruction (Kampfer, Horvath, Kleinert, & Kearns, 2001) and have been trained in participation and accommodation decisions on large-scale assessments (DeStefano, Shriner, & Lloyd, 2001) also tend to have students who score higher on alternate assessments. The time

teachers spend preparing the cosmetic features of an alternate assessment seems to have little outcome on student scores (Kampfer et al., 2001). The key to successful test administration is to provide teachers with excellent training, give them a well-defined scoring rubric, and ensure that they are familiar with how the student best demonstrates what he or she is capable of doing.

It is important to remember that *all* large-scale accountability assessments do, to some extent, test teachers. Accountability assessments like AA-AAS measure achievement at the individual student level, but ultimately reflect the efforts of the teacher, school, and district. This is true not only for AA-AAS, but for general assessments as well. Large-scale assessments should identify schools and districts where teachers are providing high-quality, standards-based instruction to all students, while controlling for administrator behaviors.

Research-based Recommendation #7:

Train teachers on systematic data gathering procedures, provide oversight, coaching, and monitoring to ensure they implement the procedures as intended, and design scoring processes to exclude evidence that reflects teacher behaviors instead of independent student performance.

Common Misperception #8—It would make more sense if teachers simply reported on their students' progress meeting IEP goals rather than requiring an AA-AAS.

Some people assume that gathering data that already are used for the IEP is the best measure of student achievement. Indeed, the AA-AAS does not displace the important role of the IEP. A good IEP will identify the services, supports, and specialized instruction needed so that the student can learn both academic and functional skills and knowledge. Data gathered on the specific goals and objectives in the IEP are important for *individual accountability* among IEP team members for these short- and long-term goals and objectives in all areas where the student has them. Some of these goals and objectives will specify the services and supports the student needs to *access* the general curriculum, but student progress based on the IEP does not provide accountability for student achievement of proficiency in the general curriculum (U.S. Department of Education, 2005). In contrast, AA-AAS are designed to provide data for *system accountability* to ensure that all students are provided access to and are achieving to proficiency in the general curriculum (Quenemoen, Rigney, & Thurlow, 2002). The leverage of system accountability, as well as individual accountability, may yield far more opportunities for most students, including targeting important school improvement resources (Thurlow, Quenemoen, Thompson, & Lehr, 2001). IEPs ideally should be aligned with the academic skills required on

AA-AAS. Initial research on the effects of IEP-assessment alignment on AA-AAS scores has been mixed, and more research is required (Karvonen & Huynh, 2007).

Furthermore, alternate assessments must be scored according to professionally accepted standards applicable to all accountability assessments (AERA, APA, & NCME, 1999). Teachers may be trained to score alternate assessments, and this is particularly appropriate for some test formats such as rating scales or performance tasks. However, an independent second rater, or a sample of independent audits of evidence, can provide needed information on the validity and reliability of the scores, even when the teacher serves as the first scorer. For example, in one state, the teacher rates the student's skills and knowledge, but a sample of the actual student work is collected and reviewed by a second rater. Another state has teachers videotape the administration, and all videotapes are submitted to the state for a review. Increasingly, because of reporting timelines, states are using professional scorers who must comply with minimum education requirements and must attain and maintain rigorous standards for scoring accuracy (Quenemoen, 2009).

Research-based Recommendation #8:

Design AA-AAS so that there are comparable data on the effectiveness of schools in providing access to the general curriculum to students with the most significant cognitive disabilities.

Common Misperception #9—Some AA-AAS formats (i.e., portfolio, checklist, performance assessment) are better than others.

States tend to use one or a combination of common alternate assessment formats, including a portfolio, a checklist, a performance assessment, or observation in structured and unstructured settings (Roeber, 2002). However, research on the technical quality of AA-AAS has shown that the format of the test is a poor predictor of technical quality. The nature of a “portfolio” or “checklist” or “performance assessment” can vary enormously, and a number of states now use hybrid models that combine elements of these approaches (Gong & Marion, 2006; Quenemoen, 2009; Quenemoen, Thompson, & Thurlow, 2003). The three main test formats share many attributes in common (Elliott & Roach, 2007), and any of these formats by name alone can be of poor or high quality.

A good AA-AAS is built on a set of beliefs about how students with severe disabilities learn and demonstrate the academic content. Questions that need to be addressed include: What kinds of observations of their learning will give us evidence of what these students know and do in

the academic content? What should we “see” when these students have been given access to the same grade-appropriate, interesting content as their typical peers? The responses to these questions help answer the question of what is the “best” format for the AA-AAS. Though states’ current formats can vary widely, they show very similar assumptions about what successful outcomes look like for students with the most significant cognitive disabilities (Quenemoen et al., 2003). These assumptions build on lessons learned from the functional curriculum, based on observations of how full or partial participation in the full range of age-appropriate school and community-based activities enhances the lives and social integration of students with significant cognitive disabilities (Quenemoen, 2009; Ysseldyke & Olsen, 1997). The extension of these concepts to the academic curriculum has resulted in a new understanding of what is possible when these students have access not only to the classrooms of their peers but also to the curriculum taught in the classrooms. Alternate assessments should be designed to collect samples of supporting evidence of what a student knows and can do, regardless of the format of the assessment (e.g., body of evidence, checklist, or performance task). Over time, this evidence can be used to understand better how these students develop skills and knowledge in the academic domains and inform improvements in alternate assessment design (Marion & Pellegrino, 2006).

Research-based Recommendation #9:

Select the format of the AA-AAS based on beliefs about academic teaching and learning for AA-AAS students.

Common Misperception #10—No AA-AAS can be a technically adequate measure of student achievement for accountability purposes.

People sometimes assume that AA-AAS breaks all the rules of good design of large-scale assessments, as judged by high quality psychometric evidence that has been used by measurement experts for a century. In order to function well as a tool for accountability, and to meet NCLB regulations, AA-AAS must indeed be technically defensible (NCLB, 2001; U.S. Department of Education, 2004). Researchers continue to assess the quality of states’ alternate assessments, with mixed results (Johnson & Arnold, 2004; Tindal et al., 2003; Yovanoff & Tindal, 2007).

The challenges of designing AA-AAS are very new; prior to the 1990s, no large-scale assessment program included students with significant cognitive disabilities, and very few measurement experts had experience designing assessments for these students. Due to relatively small numbers of test takers, and the intentional flexibility of the tests, some AA-AAS cannot be evaluated the same way that general assessments are examined. The data set is not large enough, and the elements are not entirely standardized according to traditional definitions (Gong & Marion, 2006).

Fortunately, there has been a great deal of work done since the 1990s on issues that have emerged in developing psychometrically sound AA-AAS. Some researchers are beginning to use the assessment triangle proposed by Pellegrino, Chudowsky, and Glaser (2001) in *Knowing What Students Know*. To evaluate the technical quality of an assessment, we must analyze the interaction between how we think students develop knowledge and achieve proficiency, how we design tests to allow students to show what they know, and how we interpret the results of the test in a meaningful way. This assessment triangle between cognition, observation, and interpretation represents an evidence-based analysis of the technical quality of an assessment.

Another way to understand and estimate validity of AA-AAS outcomes is to look at the intended and unintended consequences of an assessment on teaching and learning (Linn, Baker, & Dunbar, 1991; Marion & Pellegrino, 2006; Marion & Perie, 2009; Shepard, 1993; Stone & Lane, 2003). For instance, two intended outcomes of AA-AAS are to improve the quality of instruction and to raise the level of performance for students with significant cognitive disabilities. Initial evidence suggests that it may indeed have this effect (Cortiella, 2007; Kleinert et al., 1999; Quenemoen et al., 2001; Towles-Reeves et al., 2006; Ysseldyke et al., 2003). Yet recent surveys of parents and teachers show that they have both positive and negative perceptions of the effects of AA-AAS on their students' education (Roach, 2006; Roach, Elliott, & Berndt, 2007). More research is needed to document the intended and unintended effects of AA-AAS on student performance, as well as on post-school outcomes.

States must continue to work on ensuring the technical quality of their AA-AAS. A recent study of 50 states and the District of Columbia (N=51) shows that only 35% of these states in 2006-07 could document with evidence that their scoring and reporting structures reflected the knowledge that students were being asked to demonstrate (Cameto et al., 2009). In the same study, 41% of these states had conducted a formal study to document the validity of the alternate assessment outcomes in relation to the intended internal or external variables, and could present the data for review. Forty-seven percent had not conducted any such study. The AA-AAS can be designed to produce valid and reliable information, but states must continue to work with experts and stakeholders to ensure that their assessments show alignment between the way students demonstrate learning, what the assessment actually tests, and how they interpret the results.

Research-based Recommendation #10:

State assessment offices should address three components of the assessment design as they develop and implement the AA-AAS: (a) description of the student population and a theory of learning for these students, (b) structure of the observations from the assessment, and (c) interpretation of the results. The technical defense of an AA-AAS starts and ends with these three components.

Conclusions

Alternate assessments based on alternate achievement standards are a work in progress. As we build understanding in the field of how to design meaningful instructional opportunities in the grade-level curriculum, we anticipate that we will find new ways of capturing what these students know and can do. We also anticipate that they will continue to surprise us with their capacity to learn content that, in the past, they were never taught. As we carefully consider the consequences of the shift to increased access to academic curricula, we need to carefully sort through the concerns and even complaints from teachers, parents, and other stakeholders. We especially need to discern where the challenges of living through a paradigm shift are painful but necessary and predictable steps and where there are important adjustments to make to ensure positive consequences for students in the long run.

The degree to which we are hearing misperceptions about AA-AAS suggests that clarifying the purpose and use of these assessments may be necessary. Concerns about the appropriateness of academic content and the decreased focus on functional life skills for these students rest in part on assumptions about what kinds of skills these students will need to live satisfying, interesting, productive lives after they leave school. Current post-school outcome data rely on post-secondary enrollment or full-time employment as the primary valued post-school outcome, but the past 20 years of data do not show positive outcomes on these measures for students with significant cognitive disabilities (Newman, Wagner, Cameto, & Knokey, 2009; Wagner, Newman, Cameto, Levine, & Garza, 2006). What has not been measured is how academic skills and knowledge may enhance these students' full participation of life in their homes and communities. Would skills like reading for enjoyment and information, understanding of mathematical tools, basic understanding of scientific principles, understanding of history and current events, and orientation to and appreciation of the arts contribute to a satisfying adult life in supported or independent settings? Do these skills enhance participation in the community, in recreation and leisure, or in work? Education for students with significant cognitive disabilities has failed so far to result in full-employment or independence for the vast majority of these students, despite intensive efforts to implement community-based and community-referenced programs at the high school and sometimes middle school level. Perhaps the AA-AAS should spur new conversations about what desired outcomes for these students really are and how to achieve them. In the long run, discussion around these questions may be necessary to ensure that desired consequences are achieved from the use of AA-AAS for accountability purposes.

In the short term, the 10 recommendations we provide here can help inform improvement of the AA-AAS. Engaging all stakeholders in discussions about AA-AAS, and clarifying misperceptions as we do so, has the potential for improving academic achievement for students with significant cognitive disabilities.

References

- AERA, APA, & NCME (1999). *Standards for educational and psychological testing*. Washington, DC: American Educational Research Association.
- Almond, P. & Bechar, S. (2005). *In-depth look at students who take alternate assessments: What do we know now?* Retrieved from <http://www.measuredprogress.org/resources/inclusive/articlespapers/StudentsTakingAltAssess.pdf>
- Browder, D. (2001). *Curriculum and assessment for students with moderate and severe disabilities*. New York: Guilford Press.
- Browder, D. M., Ahlgrim-Delzell, L., Courtade, G., Gibbs, S. L., & Flowers, C. (2008). Evaluation of the effectiveness of an early literacy program for students with significant developmental disabilities. *Exceptional Children, 75*, 33–52.
- Browder, D. M., Ahlgrim-Delzell, L., Pugalee, D. K., & Jimenez, B. A. (2006). Enhancing numeracy. In D. Browder & F. Spooner (Eds.), *Teaching language arts, math and science to students with significant cognitive disabilities* (pp.171–196). Baltimore: Paul Brookes.
- Browder, D. M., Courtade-Little, G. R., Wakeman, S., & Rickelman, R. (2006). From sight words to emergent literacy. In D. Browder & F. Spooner (Eds.), *Teaching language arts, math, and science to students with significant cognitive disabilities* (pp. 63–91). Baltimore: Paul Brookes.
- Browder, D., Flowers, C., Ahlgrim-Delzell, L., Karvonen, M., Spooner, F., & Algozzine, R. (2002). *Curricular implications of alternate assessments*. Paper presented at the National Council of Measurement in Education Annual Conference, New Orleans.
- Browder, D. M., Karvonen, M., Davis, S., Fallin, K., & Courtade-Little, G. (2005). The impact of teacher training on state alternate assessment scores. *Exceptional Children, 71*, 267–282.
- Browder, D. M., & Minarovic, T. (2000). Utilizing sight words in self-instruction training for employees with moderate mental retardation in competitive jobs. *Education and Training in Mental Retardation and Developmental Disabilities, 35*, 78–89.
- Browder, D. M., & Spooner, F. (Eds.) (2006). *Teaching language arts, math and science to students with significant cognitive disabilities*. Baltimore: Paul Brookes.
- Browder, D. M., Spooner, F., Ahlgrim-Delzell, L., Flowers, C., Karvonen, M., & Algozzine, R. (2003). A content analysis of the curricular philosophies reflected in states' alternate assessment performance indicators. *Research and Practice for Persons with Severe Disabilities, 28*, 165–181.

Browder, D. M., Spooner, F., Ahlgrim-Delzell, L., Wakeman, S. Y., & Harris, A. (2008). A meta-analysis on teaching mathematics to students with significant cognitive disabilities. *Exceptional Children, 74*, 407–432.

Browder, D. M., Trela, K., & Jimenez, B. (2007). Training teachers to follow a task analysis to engage middle school students with moderate and severe developmental disabilities in grade-appropriate literature. *Focus on Autism and Other Developmental Disabilities, 22*, 206–219.

Browder, D., Wakeman, S., Flowers, C., Rickelman, R., Pugalee, D., & Karvonen, M. (2007). Creating access to the general curriculum with links to grade-level content for students with significant cognitive disabilities: An explication of the concept. *The Journal of Special Education, 41*(1), 2–16.

Browder, D. M., Wakeman, S. Y., Spooner, F., Ahlgrim-Delzell, L., & Algozzine, B. (2006). Research on reading instruction for individuals with significant cognitive disabilities. *Exceptional Children, 72*, 392–408.

Brown, L., Nietupski, J., & Hamre-Nietupski, S. (1976). Criterion of ultimate functioning. In M.A. Thomas (Ed.), *Hey, don't forget about me! Education's investment in the severely, profoundly, and multiply handicapped* (pp. 2–15). Reston, VA: Council for Exceptional Children.

Cameto, R., Knokey, A.-M., Nagle, K., Sanford, C., Blackorby, J., Sinclair, B., and Riley, D. (2009). *National profile on alternate assessments based on alternate achievement standards. A report from the national study on alternate assessments* (NCSE 2009-3014). Menlo Park, CA: SRI International.

Collins, B., Kleinert, H., & Land, L. (2006). Addressing math standards and functional math. In D. Browder & F. Spooner (Eds.), *Teaching language arts, math and science to students with significant cognitive disabilities* (pp. 197–228). Baltimore: Paul Brookes.

Collins, B. C., & Stinson, D. M. (1995). Teaching generalized reading of product warning labels to adolescents with mental disabilities through the use of key words. *Exceptionality, 5*, 163–181.

Cortiella, C. (2007). *Rewards & roadblocks: How special education students are faring under No Child Left Behind*. Retrieved from <http://www.ncl.org/images/stories/OnCapitolHill/PolicyRelatedPublications/RewardsandRoadblocks/RewardsandRoadblocks.pdf>

Courtade, G. R., Spooner, F., & Browder, D. M. (2007). A review of studies with students with significant cognitive disabilities that link to science standards. *Research and Practice in Severe Disabilities, 32*, 43–49.

- DeStefano, L., Shriner, J., & Lloyd, C. (2001). Teacher decision making in participation of students with disabilities in large-scale assessments. *Exceptional Children, 68*, 7–22.
- Donnellan, A. (1984). The criterion of the least dangerous assumption. *Behavioral Disorders, 9*, 141–150.
- Downing, J. E. (2007). Building literacy for students at the presymbolic and early symbolic levels. In D. Browder & F. Spooner (Eds.), *Teaching language arts, math & science to students with significant cognitive disabilities* (pp. 39–62). Baltimore: Paul Brookes.
- Elliott, S. N., & Roach, A. T. (2007). Alternate assessments of students with significant disabilities: Alternative approaches, common technical challenges. *Applied Measurement in Education, 20*(3), 301–333.
- Erickson, R. N., Thurlow, M. L., & Ysseldyke, J. E. (1996). *Neglected numerators, drifting denominators, and fractured fractions: Determining participation rates for students with disabilities in statewide assessment programs* (Synthesis Report 23). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.
- Flowers, C., Browder, D. M., & Ahlgrim-Delzell, L. (2006). An analysis of three states' alignment between language arts and mathematics standards and alternate assessment. *Exceptional Children, 72*(2), 201–215.
- Flowers, C., Wakeman, S., Browder, D., & Karvonen, M. (2007). *Links for academic learning: An alignment protocol for alternate assessments based on alternate achievement standards*. Charlotte, NC: University of North Carolina at Charlotte.
- Gardill, M. C., & Browder, D. M. (1995). Teaching stimulus classes to encourage independent purchasing by students with severe behavior disorders. *Education and Training in Mental Retardation and Developmental Disabilities, 30*, 254–264.
- Gong, B., & Marion, S. (2006). *Dealing with flexibility in assessments for students with significant cognitive disabilities* (Synthesis Report 60). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.
- Horvath, L. S., Kampfer-Bohach, S., & Kearns, J. F. (2005). The use of accommodations among students with deafblindness in large-scale assessment systems. *Journal of Disability Policy Studies, 16*(3), 177–187.
- Hughes, C., & Carter, E. W. (2008). *Peer buddy programs for successful secondary school inclusion*. Baltimore: Paul Brookes.

- Jimenez, B., Browder, D., & Courtade, G. (2008). Teaching an algebraic equation to high school students with moderate developmental disabilities. *Education and Training in Developmental Disabilities, 43*(2), 266–274.
- Johnson, E., & Arnold, N. (2007). Examining an alternate assessment: What are we testing? *Journal of Disability Policy Studies, 18*(1), 23–31.
- Johnstone, C., Thurlow, M., Thompson, S., & Clapper, A. (2008). The potential for multi-modal approaches to reading for students with disabilities as found in state reading standards. *Journal of Disability Policy Studies, 18*(4), 219–229.
- Jorgensen, C. (2005). The least dangerous assumption: A challenge to create a new paradigm. *Disability Solutions, 6*(3). Retrieved from: <http://www.disabilitysolutions.org/newsletters/files/six/6-3.pdf>
- Kampfer, S. H., Horvath, L. S., Kleinert, H. L., & Kearns, J. F. (2001). Teachers' perceptions of one state's alternate assessment: Implications for practice and preparation. *Exceptional Children, 67*, 361–374.
- Katims, D. S. (2001). Literacy assessment of students with mental retardation: An exploratory investigation. *Education and Training in Mental Retardation and Developmental Disabilities, 36*, 363–372.
- Karvonen, M., Flowers, C., Browder, D. M., Wakeman, S. Y., & Algozzine, B. (2006). Case study of the influences on alternate assessment outcomes for students with disabilities. *Education and Training in Developmental Disabilities, 41*, 95–110.
- Karvonen, M., & Huynh, H. (2007). Relationship between IEP characteristics and test scores on an alternate assessment for students with significant cognitive disabilities. *Applied Measurement in Education, 20*(3), 273-300.
- Kearns, J. F., Towles-Reeves, E., Kleinert, H. L., Kleinert, J. O., & Thomas, M. K. (in press). Characteristics of and implications for students participating in alternate assessments based on alternate achievement standards. *The Journal of Special Education*.
- Kleinert, H., Browder, D., & Towles-Reeves, E. (2009). Models of cognition for students with significant cognitive disabilities: Implications for assessment. *Review of Educational Research, 79*, 301–326.

Kleinert, H., Collins, C., Wickham, D., Riggs, L., & Hager, K. (in press). Embedding life skills, self-determination, and enhancing social relationships and other evidence-based practices. In J. Kearns & H. Kleinert (Eds.), *Meaningful outcomes for students with significant cognitive disabilities: Alternate assessment on alternate achievement standards*. Baltimore: Paul Brookes.

Kleinert, H., & Kearns, J. (Eds.) (in press). *Meaningful outcomes for students with significant cognitive disabilities: Alternate assessment on alternate achievement standards*. Baltimore: Paul Brookes.

Kleinert, H. L., & Kearns, J. F. (2001). *Alternate assessment: Measuring outcomes and supports for students with disabilities*. Baltimore: Paul Brookes.

Kleinert, H. L., Kennedy, S., & Kearns, J. F. (1999). The impact of alternate assessments: A statewide teacher survey. *The Journal of Special Education, 33*(2), 93–102.

Kliewer, C., & Biklen, D. (2001). “School’s not really a place for reading”: A research synthesis of the literate lives of students with severe disabilities. *Journal of the Association for Persons with Severe Handicaps, 26*(1), 1–12.

Kliewer, C., Biklen, D., & Kasa-Hendrickson, C. (2006). Who may be literate? Disability and resistance to the cultural denial of competence. *American Educational Research Journal, 43*(2), 163–192.

Lalli, J. S., & Browder, D. M. (1993). Comparison of sight word training procedures with validation of the most practical procedure in teaching reading for daily living. *Research in Developmental Disabilities, 14*, 107–127.

Linn, R., Baker, E., and Dunbar, S. (1991). Complex, performance-based assessment: expectations and validation criteria. *Educational Researcher, 20*(8), 16–21.

Marion, S., & Pellegrino, J. (2006). A validity framework for evaluating the technical quality of alternate assessments. *Educational Measurement: Issues and Practices, 25*(4), 47–57.

Marion, S., & Perie, M. (2009). An introduction to validity arguments for alternate assessments. In W. Schafer & R. Lissitz (Eds.), *Alternate assessments based on alternate achievement standards: Policy, practice, and potential* (pp. 113–126). Baltimore: Paul Brookes.

McDonnell, J. (1987). The effects of time delay and increasing prompt hierarchy strategies on the acquisition of purchasing skills by students with severe handicaps. *The Journal of the Association for Persons with Severe Handicaps, 12*, 227–236.

McDonnell, J., Mathot-Buckner, C., Thorson, N., & Fister, S. (2001). Supporting the inclusion of students with moderate and severe disabilities in junior high school general education classes: The effects of classwide peer tutoring, multi-element curriculum, and accommodations. *Education and Training of Children, 24*, 141–160.

McGrew, K. S., Vanderwood, M. L., Thurlow, M. L., & Ysseldyke, J. E. (1995). *Why we can't say much about the status of students with disabilities during education reform* (Synthesis Report No. 21). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.

Newman, L., Wagner, M., Cameto, R., & Knokey, A. M. (2009). *The post-high school outcomes of youth with disabilities up to 4 years after high school. A report of findings from the national longitudinal transition study-2 (NLTS2) (NCSE 2009-3017)*. Retrieved from www.nlts2.org/reports/2009_04/nlts2_report_2009_04_complete.pdf

No Child Left Behind (NCLB) Act of 2001, Pub. L. No. 107-110, § 115, Stat. 1425 (2002).

Pellegrino, J., Chudowsky, N., & Glaser, R., Eds. (2001). *Knowing what students know: The science and design of educational assessment*. Washington, DC: National Research Council.

Quenemoen, R. F. (2009). The long and winding road of alternate assessments. In W. Schafer & R. Lissitz (Eds.), *Alternate assessments based on alternate achievement standards: Policy, practice, and potential* (pp. 127–156). Baltimore: Paul Brookes.

Quenemoen, R. F., Lehr, C. A., Thurlow, M. L., & Massanari, C. B. (2001). *Students with disabilities in standards-based assessment and accountability systems: Emerging issues, strategies, and recommendations* (Synthesis Report 37). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.

Quenemoen, R., Rigney, S., & Thurlow, M. (2002). *Use of alternate assessment results in reporting and accountability systems: Conditions for use based on research and practice* (Synthesis Report 43). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.

Quenemoen, R., Thompson, S., & Thurlow, M. (2003). *Measuring academic achievement of students with significant cognitive disabilities: Building understanding of alternate assessment scoring criteria* (Synthesis Report No. 50). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.

Roach, A. (2006). Influences on parent perceptions of an alternate assessment for students with severe cognitive disabilities. *Research & Practice for Persons with Severe Disabilities, 31*, 267–274.

- Roach, A. T., & Elliott, S. N. (2006). The influence of access to the general education curriculum on the alternate assessment performance of students with severe cognitive disabilities. *Educational Evaluation and Policy Analysis*, 28, 181–194.
- Roach, A., Elliott, S., & Berndt, S. (2007). Teacher perceptions and the consequential validity of an alternate assessment for students with significant disabilities. *Journal of Disability Policy Studies*, 18, 168–175.
- Roach, A., Elliott, S., & Webb, N. (2005). Alignment of an alternate assessment with state academic standards: Evidence for the content validity of the Wisconsin alternate assessment. *The Journal of Special Education*, 38(4), 218–231.
- Roeber, E. (2002). *Setting standards on alternate assessments* (Synthesis Report 42). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.
- Ryndak, D. L., Morrison, A. P., & Sommerstein, L. (1999). Literacy before and after inclusion in general education settings: A case study. *The Journal of the Association for Persons with Severe Handicaps*, 24, 5-22.
- Schafer, W. D. (2005). Technical documentation for alternate assessments. *Practical Assessment Research & Evaluation*, 10(10). Retrieved from <http://pareonline.net/getvn.asp?v=10&n=10>
- Shepard, L. A. (1993). Evaluating test validity. *Review of Research in Education*, 19, 405–450.
- Spooner, F., & Browder, D. (2006). Why teach the general curriculum? In D. Browder & F. Spooner (Eds.), *Teaching language arts, math and science to students with significant cognitive disabilities* (pp. 1–13). Baltimore: Paul Brookes.
- Stone, C. A. & Lane, S. (2003) Consequences of a state accountability program: Examining relationships between school performance gains and teacher, student, and school variables. *Applied Measurement in Education*, 16(1), 1–26.
- Thompson, S. J., Johnstone, C. J., Thurlow, M. L., & Clapper, A. T. (2004). *State literacy standards, practice, and testing: Exploring accessibility* (Technical Report 38). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.
- Thurlow, M. L., Nelson, J. R., Teelucksingh, E., & Ysseldyke, J. E. (2000). *Where's Waldo? A third search for students with disabilities in state accountability reports* (Technical Report 25). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.

- Thurlow, M., Quenemoen, R., Thompson, S., & Lehr, C. (2001). *Principles and characteristics of inclusive assessment and accountability systems* (Synthesis Report 40). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.
- Thompson, S. J., Quenemoen, R., Thurlow, M. L., & Ysseldyke, J. E. (2001). *Alternate assessments for students with disabilities*. Thousand Oaks, CA: Corwin Press.
- Tindal, G., McDonald, M., Tedesco, M., Glasgow, A., Almond, P., Crawford, L., & Hollenbeck, K. (2003). Alternate assessment in reading and math: Development and validation for students with significant disabilities. *Exceptional Children*, *69*, 481–494.
- Towles-Reeves, E., Garrett, B., Burdette, P., & Burdge, M. (2006). Validation of large-scale alternate assessment systems and their influence on instruction—What are the consequences? *Assessment for Effective Intervention*, *31*(3), 45–57.
- Towles-Reeves, E., Kearns, J., Kleinert, H., & Kleinert, J. (2009). An analysis of the learning characteristics of students taking alternate assessments based on alternate achievement standards. *Journal of Special Education*, *42*(4), 241–254.
- Turnbull, H. R., Turnbull, A. P., Wehmeyer, M. L., & Park, J. (2003). A quality of life framework for special education outcomes. *Remedial and Special Education*, *24*(2), 67–74.
- U.S. Department of Education (2004). Standards and assessments peer review guidance: Information and examples for meeting requirements of the No Child Left Behind Act of 2001. Washington, DC: Author.
- U.S. Department of Education (2005, August). Alternate achievement standards for students with the most significant cognitive disabilities: Non-regulatory guidance. Washington, DC: Author.
- Wagner, M., Newman, L., Cameto, R., Levine, P., & Garza, N. (2006). *An overview of findings from wave 2 of the national longitudinal transition study-2 (NLTS2)*. Retrieved from www.nlts2.org/reports/2006_08/nlts2_report_2006_08_complete.pdf
- Ward, T., Van De Mark, C. A., & Ryndak, D. L. (2006). Balanced literacy classrooms and embedded instruction for students with severe disabilities: Literacy for all in the age of school reform. In D. Browder & F. Spooner (Eds.), *Teaching language arts, math and science to students with significant cognitive disabilities* (pp. 125–170). Baltimore: Paul Brookes.
- Westling, D. L., Floyd, J., & Carr, D. (1990). Effects of single setting versus multiple setting training on learning to shop in a department store. *American Journal on Mental Retardation*, *94*, 616–624.

Wiener, D. (2005). *One state's story: Access and alignment to the GRADE-LEVEL content for students with significant cognitive disabilities* (Synthesis Report 57). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.

Yovanoff, P., & Tindal, G. (2007). Scaling early reading alternate assessments with statewide measures. *Exceptional Children*, 73(2), 184–201.

Ysseldyke, J., Dennison, A., & Nelson, R. (2003). *Large-scale assessment and accountability systems: Positive consequences for students with disabilities* (Synthesis Report 51). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.

Ysseldyke, J. E., & Olsen, K. R. (1997). *Putting alternate assessments into practice: What to measure and possible sources of data* (Synthesis Report 28). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.

Zascavage, V. T., & Keefe, C. H. (2004). Students with severe speech and physical impairments: Opportunity barriers to literacy. *Focus on Autism and Other Developmental Disabilities*, 19, 223–234.

The **National Center on Educational Outcomes** (NCEO) (www.nceo.info) has been providing national leadership in designing and building educational assessments, especially for students with disabilities and students who are English language learners, for almost twenty years. NCEO works with states to identify important outcomes for students with disabilities and examine their participation in national and state assessments, including with the use of accommodations and alternate assessments. NCEO believes that it is possible to enhance the positive consequences of assessments used for system accountability with students with disabilities and reduce their negative consequences through systematic attention to assumptions in the design, implementation, and continuous improvement of assessments and related accountability systems.

The **National Alternate Assessment Center** (NAAC) represents a multi-disciplinary team of experts in measurement and special education to advance theory and practice in the designs of alternate assessments. NAAC provides guidance to states as they design or re-design their alternate assessments, using the best research available on effective measurement practices, universal design, and alignment with grade-level content expectations and curriculum. NAAC provides resources to states, teachers, and parents on its Web site (www.naacpartners.org).