Exceptional Children
2015, Vol. 81(3) 312–328

DOI: 10.1177/0014402914563697
ec.sagepub.com
SAGE

Where Students With the Most Significant Cognitive Disabilities Are Taught: Implications for General Curriculum Access

Harold Kleinert[1], Elizabeth Towles-Reeves[2], Rachel Quenemoen[3], Martha Thurlow[3], Lauren Fluegge[2], Laura Weseman[2], and Allison Kerbel[2]

Abstract

Surveying 15 states and 39,837 students, this study examined the extent to which students who took an alternate assessment based on alternate achievement standards in the 2010–2011 school year had access to regular education settings and the extent to which that access correlated with expressive communication, use of an augmentative or alternative communication (AAC) system, and reading and math skill levels. The vast majority (93%) of students were served in self-contained classrooms, separate schools, or home settings, whereas only 7% were served in regular education or resource room placements. There was a significant, positive correlation between expressive communication and reading and math skill levels with increasingly inclusive classroom settings and a significant, negative correlation between use of AAC and more inclusive settings. Implications of these findings are discussed.

Students with the most significant cognitive disabilities—those students for whom regular educational assessments, even with appropriate accommodations, are inappropriate measures of school achievement (Individuals With Disabilities Education Act [IDEA], 2006 34 C.F.R. § 300) account for an estimated 1% or less of all students (Kearns, Towles-Reeves, Kleinert, Kleinert, & Thomas, 2011; Kleinert, Quenemoen, & Thurlow, 2010; U.S. Department of Education, 2005). Students with the most significant disabilities have been characterized as requiring "extensive repeated individualized instruction and support that is not of a temporary or transient nature" and needing "substantially adapted materials and individualized methods of accessing information in alternative ways to acquire, maintain, generalize, demonstrate and transfer skills across multiple settings" (National Center and State Collaborative, 2012, p. 1).

Under the No Child Left Behind Act of 2001 (NCLB), students with the most significant cognitive disabilities are assessed on *alternate achievement standards*, which are, in turn, linked to grade-level academic content standards (U.S. Department of Education, 2004). Each state is charged with developing its own alternate assessment based on alternate achievement standards (AA-AAS) while ensuring clear links to grade-level academic content.

In addition to the NCLB requirements for yearly assessments in Grades 3 through 8 (and

[1]University of Kentucky
[2]edCount, LLC
[3]University of Minnesota

Corresponding Author:
Harold L. Kleinert, EdD, Human Development Institute, University of Kentucky, Human Development Institute, Lexington, KY, USA.
E-mail: hklein@uky.edu

once in high school) of student performance on content linked to grade-level standards, IDEA mandates participation in the general curriculum for all students with disabilities. Yet, researchers and practitioners do not have a clear national picture of the extent to which students with the most significant cognitive disabilities have access to the general curriculum in the context of learning with their peers without disabilities. Although access to the general curriculum must be provided for all students, regardless of educational setting, there are at least two specific reasons for considering the extent to which students with the most significant cognitive disabilities are included in general education classes. First, the IDEA least restrictive environment (LRE) mandate specifically states that students are to be removed from general education classroom settings only when the severity of their disability is such that even with modifications, their needs cannot be met in a regular class (34 C.F.R. § 300.114[a][2][ii]). The presumption is that practitioners will first consider general education placement for all students, even students with the most significant cognitive disabilities. Second, apart from the LRE requirement, the general education classroom provides advantages not easily attained in special class settings, including the presence of a teacher with expertise in the academic core content subject, the use of learning materials and tools specific to that subject, and opportunities for learning alongside peers who can provide natural supports (Carter, Sisco, Brown, Brickham, Al-Khabbaz, 2009; Hunt, McDonnell, & Crockett, 2012; Jimenez, Browder, Spooner, & DiBiase, 2012; Ryndak, Jackson, & White, 2013).

Researchers and practitioners do not have a clear national picture of the extent to which students with the most significant cognitive disabilities have access to the general curriculum.

As Jackson, Ryndak, and Wehmeyer (2008–2009) have noted, the general education classroom provides specific contextual factors, including "features of the physical setting, the activities, roles and contributions of the participants, the timing of events, and the interpersonal relationships" (p. 179) not often present or easily replicated in more segregated settings. Moreover, Jackson et al. have noted the increased opportunities for incidental and imitative learning available in general education settings as well as the inherent difficulties of providing general curriculum instruction explicitly linked to the grade-level academic content standards in self-contained settings, in which special education teachers typically have simultaneous teaching responsibilities for students across multiple grades or age levels.

The importance of access to general education classrooms for students with severe disabilities was further accentuated by the work of Fisher and Meyer (2002). In a five-state study involving 40 students, matched in dyads by adaptive behavior scores and chronological age, these authors found significantly higher gains for students in inclusive settings in both adaptive behavior and social competence than for their counterparts in self-contained settings. Although this study did not target academic achievement per se, the social competence measure included such skills as initiating interactions, self-managing one's own behavior, making choices among alternatives, and obtaining relevant cues—all essential skills for accessing the general curriculum, regardless of the setting in which that curriculum is taught. Bouck (2012), in conducting a secondary analysis of the National Longitudinal Transition Study–2 (NLTS), found that students with moderate and severe intellectual disabilities fared equally poorly with either an academic or functional curricula focus. However, Bouck also found that the students with moderate to severe disabilities in the NLTS data sample had received almost all of their instruction, including core academic subjects, in self-contained settings. We next consider what is known about access to general education classrooms for students with the most significant cognitive disabilities.

Students With Significant Disabilities and LRE: What We Know

There is a very good reason why the field does not have good, large-scale data on participation of students with the most significant cognitive disabilities in regular education settings: Students with the most significant cognitive disabilities do not represent a single IDEA disability category. Rather, students with the most significant cognitive disabilities typically include students with moderate and severe intellectual disability as well as many students receiving special education services under the IDEA categories of autism, multiple disabilities, and deaf-blindness (Cameto et al., 2010; Kearns et al., 2011). Although the U.S. Office of Special Education Programs (OSEP) does report, on an annual basis, the extent to which students with disabilities participate in general education settings and, more specifically, the extent to which students participate in those settings by IDEA disability category, because students with the most significant cognitive disabilities represent a portion or fraction of students across several disability categories (and typically, the students with the most severe disabilities in each of those categories), we cannot extrapolate LRE data for students participating in a state AA-AAS by an analysis of national LRE data by disability category. The purposes of the present study were to (a) give a first national picture (across 15 states) of what *access to general education classrooms* looks like for students with the most significant cognitive disabilities participating in a state AA-AAS, (b) examine if there were significant variations in LRE data for these students at the state level across the sample of 15 states, and (c) investigate if there were variations in student learner characteristics (i.e., expressive and receptive language use, use of augmentative or alternative communication [AAC], math and reading descriptors) within state populations in an AA-AAS that could predict variations in LRE placements.

LRE by Disability Category

As previously noted, although students participating in an AA-AAS can include students receiving services from any IDEA disability category, the majority of students participating in a state AA-AAS receive special education services under the following categories: intellectual disability, autism, and multiple disabilities (Cameto et al., 2010; Kearns et al., 2011). According to the most recent *Annual Report to Congress* (U.S. Department of Education, 2012), it is clear that students receiving services through these disability categories are much more likely to be served in separate classrooms or separate school environments than the population of students with disabilities as a whole. These data, reflecting the 2007–2008 school year, indicate that for all students ages 6 through 21 served under IDEA in U.S. states and territories (N = 5,978,081), 57% were served primarily in regular classrooms (at least 80% of the school day). However, for that same school year, only 16% of students with intellectual disability, 13% of students with multiple disabilities, and 35% of students with autism were served primarily in general education classrooms. Only 15% of all students with disabilities were served in self-contained classrooms (less than 40% of the school day in a regular classroom) during the 2007–2008 school year, compared to 49% of students with intellectual disability, 45% of students with multiple disabilities, and 37% of students with autism who were served in separate class placements. Moreover, only 3% of all students with disabilities were served in separate schools that year, compared to 6% of students with intellectual disability, 20% of students with multiple disabilities, and 9% of students with autism (U.S. Department of Education, 2011). Thus for each of these measures, we find students representing these three IDEA categories being served in more restrictive settings than are students with disabilities as a whole.

We were able to retrieve more recent national LRE data from the National Data Accountability Center using the Data Tool available through the center (Data Accountability Center, 2012). Data available for the 2009–2010 school year reflect the educational placements (ages 6–21) for students with intellectual disability, multiple disabilities, and autism, in comparison to educational placement

Table 1. Part B Least Restrictive Environment Data 2009–2010 School Year: Students Ages 6 to 21 (in Percentages).

IDEA disability category	Regular class	Resource room	Self-contained class	Separate school	Other
Intellectual disability	17	27	48	6	1
Multiple disabilities	13	16	46	20	5
Autism	37	18	35	8	1
All disabilities	59	21	15	3	1

Source. Adapted from Data Accountability Center (2012).

for all students with disabilities served under IDEA in that age range. Table 1 summarizes 2009–2010 data, indicating slight increases in regular education placement for students with intellectual disabilities (+1%) and autism (+3%). Yet, as Smith (2007) has noted for students classified with an intellectual disability, the overall percentage of students whose primary placement was in a regular education classroom has changed only very slowly in the longer view—from 7% in the 1992–1993 to 11% in the 2002–2003 school year. More recent national data, although indicating a positive slope, still reflects that fewer than one in five students with an intellectual disability are educated primarily in a regular classroom.

Students and AA-AAS: Educational Placement Research

Although we do have national data indicating educational placement by disability category, much less is known about the extent to which students who participate in a state AA-AAS have access to general education settings. In one study that did examine educational settings for students with the most significant cognitive disabilities, Cameto et al. (2010) asked 484 teachers across three states to indicate the educational placement for a teacher-selected target student on their caseload who was currently participating in their state's respective AA-AAS. A total of 422 teachers (87%) responded, yielding an *N* of 422 target students. These authors found that only 3% of students in that sample were participating in inclusive or collaborative settings (i.e., at least 80% of the school day in general education settings), 14% were participating in resource room settings (40% to 79% of the school day in general education settings), 74% were served in self-contained classrooms, and 9% were served in special schools. In order to further delineate the degree of inclusion for students primarily served in separate classrooms (a total of 74% of all students in their sample), Cameto et al. asked teachers to differentiate those students who were in the separate classroom for almost all activities (23%); those who were in the separate classroom except for homeroom, lunch, and "specials" (19%); and those who were simply served 61% or more of the day in separate classrooms (32%). These authors' findings would suggest that students participating in their respective state's AA-AAS have considerably higher placements in self-contained classrooms than overall 2009–2010 national data for students with intellectual disability (48%), students with multiple disabilities (46%), and students with autism (35%), the categories from which the majority of students participating in a state AA-AAS primarily emerge.

Placement in separate schools for students participating in an AA-AAS (9%) for the Cameto et al. (2010) study were roughly comparable to separate school national placement data for students with intellectual disability (6%), multiple disabilities (20%), and autism (8%). However, these variations, especially in the case of separate school placement of students with multiple disabilities, may simply have been the result of a relatively small sample size (further reducing the number of students in each placement setting by disability category) and the specific service delivery characteristics

of the three states in the sample. Although these data are suggestive of the extent to which students with the most significant cognitive disabilities are removed from general education settings, a larger-scale study involving both a broader range of states and a considerably larger number of students is necessary to gain a more complete picture of regular classroom participation for students in the AA-AAS. Moreover, although it would appear that severity of disability may account, in part, for the limited general education access for students with significant cognitive disabilities, research is needed to identify potential student characteristics predictive of more restrictive placements for students in a state AA-AAS.

To further investigate the issues, we analyzed data in a 15-state database of almost 40,000 students participating in their respective state's AA-AAS to answer the following research questions:

1. To what extent do students across all of these states have access to general education settings?
2. To what extent does access to the general education settings for all students in the 15-state database correlate with (a) expressive communicative competence, (b) use of an AAC system, (c) level of reading skill, and (d) level of math skill?
3. Across our full 15-state sample, do specific student characteristics (expressive communication competence, use of AAC, reading and math skill) predict student educational placement?

The states in the present sample are partnering states in the National Center and State Collaborative (NCSC), funded by the U.S. Department of Education to develop a common AA-AAS aligned to the Common Core State Standards. As such, this study represents an in-depth exploration of a portion of the data set reported in Towles-Reeves et al. (2012). The Towles-Reeves et al. study was designed to describe the learner characteristics of the students participating in the respective state alternate assessments across partnering NCSC states. The present study examined the extent of access to general education settings in the context of learning with typical peers across these participating states and the relationship of that access to specific learner characteristics.

Method

Instrumentation

We used the Learner Characteristics Inventory (LCI; Kearns, Kleinert, Kleinert, & Towles-Reeves, 2006) to gather information about the population of students taking the AA-AAS based on their specific characteristics. The LCI includes 10 items designed to address the following student characteristics: receptive and expressive communication, hearing, vision, motor, engagement, health and attendance, and a reading and mathematics indicator based on broad range skill progression. In addition, the LCI includes a dichotomous variable regarding use of AAC. Reliability information for the LCI has been reported elsewhere (Towles-Reeves, Kearns, Kleinert, & Kleinert, 2009). In the initial pilot of this instrument, the average interrater agreement per variable was 95%, indicating the instrument was a sufficiently reliable tool to investigate the learning characteristics of students with the most significant cognitive disabilities. The LCI has been subsequently used in multistate studies with over 12,600 students (Kearns et al., 2011) and by Cameto et al. (2010) for over 400 students.

We added an item to the LCI for the 2010–2011/2011–2012 administration, asking teachers to report the educational setting for each of their students participating in the AA-AAS, using the same definitions of educational placements used by the OSEP in district and state collection of annual child count data. That item asked teachers to identify the student's primary educational setting, including (a) separate school; (b) regular school, self-contained special education classroom; (c) regular school, primarily self-contained classroom, with some academic inclusion but participating in general education classrooms less than 40% of the school day; (d) regular school, resource room,

with participation in general education classrooms 40% or more of the school day; and (e) regular school, general education class inclusive or collaborative, based in general education classes, with at least 80% of the school day spent in general education classes. As did Cameto et al. (2010), we allowed for more than one choice, such as (b) and (c), under separate class placement to enable teachers to differentiate the ways in which students served primarily in separate class placements did have opportunities for social or academic inclusion in their schools.

In addition to the item on classroom setting, we also used the variables of expressive communication competence, use of an AAC system, reading skill, and math skill. All five items can be found in Figure 1.

Data Collection

After receiving institutional review board approval from the lead institution (University of Minnesota IRB No. 1101E95452), we implemented the data collection procedures. Different methods were used to collect LCI data for each of the participating states; as noted earlier, all of these states were participating in the NCSC. Nine of the states collected LCI data as part of their AA-AAS system; all but one of these states submitted their aggregated LCI data for this study during the 2010–2011 school year. One state submitted data for the 2011–2012 school year because data were not available for the 2010–2011 school year. In five states, we collected data specifically for the Towles-Reeves et al. (2012) and the present study. For these five states, we developed an electronic survey format of the LCI and worked with the states to disseminate the link to the appropriate audiences. Four states sent the link for the survey to their special education directors, administrators, or test coordinators and asked them to disseminate the link to teachers of students who may participate in the AA-AAS during the 2010–2011 school year; one state sent the link directly to principals in its schools and requested dissemination to its teachers of students completing the 2010–2011 AA-AAS. Students' teachers were directed to complete this survey for each student who participated in the 2010–2011 AA-AAS.

Finally, one state sent the link of the electronic survey to its special education teachers but required submission of the LCI through its AA-AAS for each student (teachers printed the LCI, completed it, and returned it with the student's assessment). Thus, with the exception of one state (State 1), all of the NCSC partner states submitted LCI data for students participating in the AA-AAS in the 2010–2011 school year. Table 2 specifically outlines the data collection method, number of students, and number of responses per state.

Response Rate

States distributed LCIs to teachers of 77,414 students eligible to participate in the AA-AAS during the 2010–2011 (and 2011–2012 for State 1) school year. LCIs were returned for 39,837 students across the 15 states (overall response rate of 51.5%). The LCI response rates in individual states ranged from 15% to 100%, with an average state response rate of 63%. For the nine states that collected LCI data through the administration of their AA-AAS, the average response rate was 83% (ranging from 32% to 100%). For the five states that collected LCI data using the electronic survey link, the average response rate was 35% (ranging from 15% to 59%). The one state that uniquely gathered and submitted its data and submitted had a response rate of 20%.

Data Analysis

We coded the data consistently and merged all states' data into one Excel data sheet. For the states that submitted data via electronic survey, the data were coded to download consistently. In those states that gathered the data on their own and submitted to NCSC, a codebook was provided so that we could ensure consistent coding in the entire data set.

We then conducted descriptive statistics on the LRE variable for all states' LCI data to describe the overall findings for that variable.

Item	Item Levels
What is the student's primary classroom setting?	o Special school o Regular school, *self-contained special education classroom*, some special inclusion (students go to art, music, PE) but return to their special education class for most of school day. o Regular school, *primarily self-contained special education classroom*, some academic inclusion (students go to some general education academic classes (such as reading, math, science, in addition to specials) but are in general education classes less than 40% of the school day). o Regular school, *resource room/general education class*, students receive resource room services, but are in general education classes 40% or more of the school day. o Regular school, *general education class inclusive/collaborative* (students based in general education classes, special education services are primarily delivered in the general education classes) – at least 80% of the school day is spent in general education classes.
Expressive communication (check the best description)	o Uses symbolic language to communicate: Student uses verbal or written words, signs, Braille, or language-based augmentative systems to request, initiate, and respond to questions, describe things or events, and express refusal. o Uses intentional communication, but not at a symbolic language level: Student uses understandable communication through such modes as gestures, pictures, objects/textures, points, etc., to clearly express a variety of intentions. o Student communicates primarily through cries, facial expressions, change in muscle tone, etc., but no clear use of objects/textures, regularized gestures, pictures, signs, etc., to communicate.
Does your student use an augmentative communication system in addition to or in place of oral speech?	o Yes o No
Reading (check the best description)	o Reads fluently with critical understanding in print or Braille (e.g., to differentiate fact/opinion, point of view, emotional response, etc). o Reads fluently with basic (literal) understanding from paragraphs/short passages with narrative/informational texts in print or Braille. o Reads basic sight words, simple sentences, directions, bullets, and/or lists in print or Braille. o Aware of text/Braille, follows directionality, makes letter distinctions, or tells a story from the pictures that is not linked to the text. o No observable awareness of print or Braille.
Mathematics (check the best description)	o Applies computational procedures to solve real-life or routine word problems from a variety of contexts. o Does computational procedures with or without a calculator. o Counts with 1:1 correspondence to at least 10, and/or makes numbered sets of items. o Counts by rote to 5. o No observable awareness or use of numbers.

Figure 1. Learner Characteristic Inventory (LCI) items analyzed in this study.

Table 2. Learner Characteristic Inventory (LCI) Response Rate and Data Collection Method.

State	*n* of students	*n* of LCI responses	LCI response rate (%)	Data collection method
1	673	673	100	Collected by state
2	6,678	6,678	100	Collected by state
3	19,575	14,701	75	Collected by state
4	9,508	3,048	32	Research survey
5	6,652	1,970	30	Research survey
6	2,950	1,081	37	Research survey
7	646	205	32	Collected by state
8	2,100	429	20	Unique method
9	17,844	2,600	15	Research survey
10	377	377	100	Collected by state
11	945	912	97	Collected by state
12	3,175	3,175	100	Collected by state
13	861	861	100	Collected by state
14	5,000	2,938	59	Research survey
15	430	189	44	Collected by state
Total	77,414	39,837	63% average	

Note. Number of students represents the students expected to participate in the alternate assessment based on alternate achievement standards in 2010–2011 (in State 1, the 2011–2012 school year). The total LCI response rate average represents the average percentage based on an average of all state response rates. The average response rate using the total number of students eligible to participate in the alternate assessment divided by the number of respondents was 51.5%.

Next, we conducted a point biserial correlation to examine the direction and strength of the relationship between LRE and use of an AAC system. We also conducted Pearson correlation coefficients to examine the direction and strength of the relationship between LRE and expressive communication, LRE and reading skill, and LRE and mathematic skill for all states and each individual state. Finally, we performed a logistic regression analysis to examine if student characteristics (expressive communication competence, use of an AAC system, reading skill, and math skill) predicted student placement in each of those states. Further, we investigated if any or all LCI variables predicted LRE placement for the larger data set.

Results

Research Question 1

To what extent do students across all of the states have access to general education settings? On average across all NCSC partner states, teachers most frequently reported a primary classroom setting for students who participated in the AA-AAS as a self-contained special education classroom with some special inclusion activities (71%). Across all states, fewer than 3% of students had as their primary placement a general education classroom, and only 4.3% were served in a resource room setting. Table 3 shows the individual responses by state. In examining the effect of state membership on classroom setting, we did find a significant difference among states ($\chi^2 = 11061.84$, $p < .01$), although the effect size was small ($V = .27$). State 7 and State 13 had relatively high percentages of students primarily in a resource room (40% and 45%, respectively, both statistically significant at the .01 level), compared to the other NCSC partner states. States 7 and 10 reported a relatively high percentage of students who participated in the AA-AAS in a general education class inclusive or collaborative setting (16% and 20%, respectively, again both statistically significant at the .01 level) compared to the other states in our study.

Table 3. Number and Percentage of Students by Primary Classroom Setting.

	Special school		Self-contained special education with some special inclusion		Self-contained special education with some academic inclusion		Resource room		General education class		Not specified	
State	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
1[a]	27	4	462	69	101	15	32	5	13	2	16	2
2	544	8	4,818	72	712	11	319	5	285	4	0	0
3	2,746	19	10,523	72	741	5	280	2	291	2	120	1
4	155	5	2,470	81	312	10	50	2	33	1	28	1
5	104	5	1,218	62	384	19	145	7	97	5	22	1
6	49	5	699	65	232	21	66	6	22	2	13	1
7	1	0	38	19	48	23	83	40	33	16	2	1
8	44	10	278	65	71	17	24	6	12	3	0	0
9	731	28	1,568	60	146	6	56	2	74	3	25	1
10[b]	3	1	128	34	68	18	86	23	76	20	0	0
11	192	21	440	48	212	23	13	1	42	5	13	1
12[c]	181	6	2,994	94	0	0	0	0	0	0	0	0
13[d]	46	5	306	36	0	0	387	45	41	5	12	1
14	178	6	2,031	69	479	16	138	5	73	2	39	1
15	20	11	99	52	40	21	30	16	0	0	0	0
Total	5,021	12.6	28,072	70.7	3,546	8.9	1,709	4.3	1,092	2.7	290	0.7

[a]State 1 included an additional classroom setting choice, "home" (*n* = 22, 3%), which is not represented in this table.
[b]State 10 included an additional classroom setting choice, "home" (*n* = 16, 4%), which is not represented in this table.
[c]Unlike other project states, State 12 used only two codes for primary classroom setting: special schools and self-contained classroom. This difference did not have a substantial effect on the percentages reported in the total column; the percentages differed by less than 2% when calculated without including State 12.
[d]State 13 included two additional classroom setting choices, "home/hospital" (*n* = 9, 1%) and "residential facility" (*n* = 60, 7%), which are not represented in this table.

Research Question 2

What is the extent to which access to the general education settings for all students in the 15-state database can be correlated with (a) expressive communicative competence, (b) use of an augmentative communication system, (c) level of reading skill, and (d) level of math skill? To examine the direction and strength of the relationship between classroom setting and expressive communication level, we calculated Pearson correlation coefficients for each of the 15 states and for all 15 states combined. Individually, all states but two yielded a statistically significant, positive correlation between expressive communication and an increasingly inclusive classroom setting. For all states combined, findings also indicated a statistically significant, positive correlation between expressive communication and an increasingly inclusive classroom setting. Although statistically significant, the sample Pearson correlation coefficients are very small in strength, and all but one state fell under .30. State 8 had the only correlation that fell into the medium level of strength (r = .44; $p < .01$). Table 4 outlines the correlation coefficients for these variables.

To examine the direction and strength of the relationship between classroom setting and use of AAC, we next calculated point biserial correlation coefficients for classroom setting and use of AAC for each of the 15 states and for all 15 states combined; Pearson correlation coefficients could not be calculated for these data because AAC use is a binary variable. Findings indicated statistically significant, negative correlations between the use of AAC and an increasingly inclusive classroom setting for all combined

Table 4. Correlation Coefficients for Classroom Setting and Expressive Communication by State.

	Setting–expressive communication		Setting–use of AAC		Setting–reading skills		Setting–mathematics skills	
State	*r*	*p*	*r*	*p*	*r*	*P*	*r*	*p*
All	.21	<.01	−.13	<.01	.26	<.01	.27	<.01
1	.07	.07	−.13	<.01	.07	.05	.09	.02
2	.15	<.01	−.11	<.01	.19	<.01	.20	<.01
3	.25	<.01	−.19	<.01	.31	<.01	.31	<.01
4	.17	<.01	−.16	<.01	.19	<.01	.20	<.01
5	.27	<.01	−.08	<.01	.32	<.01	.29	<.01
6	.23	<.01	−.08	.01	.23	<.01	.24	<.01
7	.14	.05	.06	.35	.28	<.01	.21	<.01
8	.44	<.01	−.38	<.01	.49	<.01	.52	<.01
9	.21	<.01	−.12	<.01	.29	<.01	.27	<.01
10	.09	.07	.05	.30	.13	.01	.15	<.01
11	.14	<.01	−.11	<.01	.18	<.01	.18	<.01
12	.18	<.01	−.22	<.01	.13	<.01	.16	<.01
13	.25	<.01	−.23	<.01	.33	<.01	.35	<.01
14	.23	<.01	−.06	<.01	.24	<.01	.28	<.01
15	.28	<.01	−.15	<.01	.44	<.01	.46	<.01

Note. AAC = augmentative or alternative communication.

states (see Table 4). Individually, two states yielded positive correlations (but not statistically significant) between the use of AAC and an increasingly inclusive classroom setting. Although the findings indicated statistically significant negative correlations in all but two states, all correlations fell at or below .22 except in one state. State 8 had the only correlation that fell into the medium level of strength ($r = -0.38$, $p < .01$).

We next calculated Pearson correlation coefficients for classroom setting and reading skill and classroom setting and mathematics skill for each of the 15 states and for all 15 states combined. In reading, findings indicated statistically significant, positive correlations between reading skill and increasingly inclusive classroom setting for all combined states and each individual state (see Table 4). Further, results yielded statistically significant, positive correlations between mathematics skill and increasingly inclusive classroom setting for all combined states and for all individual states, except one (see Table 4). The sample Pearson correlation coefficients for LRE and reading skill and for LRE and mathematics skill are in general medium to small in strength, although State 8 had a stronger correlation between LRE and mathematics ($r = .52$, $p < .01$).

Research Question 3

Across our full 15-state sample, do specific student characteristics (expressive communication competence, use of AAC, reading and math skill) predict student placement? A multinomial ordinal logistic regression was used to test if expressive communicative competence, use of AAC, reading skill, and mathematics skill predicted student placement for students in the AA-AAS in the 15-state data set. The results of the regression yielded statistically significant parameter estimates for expressive communication, use of AAC, and reading and mathematics skills. Though the goodness-of-fit test suggests that the model does not fit the data well ($\chi^2 = 931.70$, $p < .01$), it is permissible because the chi-square statistic is sensitive to larger sample sizes.

For expressive communication, the regression results yielded $\beta = 0.14$ (Wald $\chi^2 = 38.99$,

$p < .01$). As expressive communication increases by one point, one can expect a 0.14 increase in the log odds being in a higher level of classroom setting (more inclusive classroom setting). For the use of AAC, results yielded $\beta = -0.23$ (Wald $\chi^2 = 46.70$, $p < .01$). For every one-point increase in the use of AAC, there is a 0.23 decrease in the log odds being in a higher-level category of classroom setting. The regression analysis yielded $\beta = 0.19$ (Wald $\chi^2 = 104.51$, $p < .01$) for reading skills. As reading skills increase by one point, the log odds of being in a higher category of classroom setting increases by 0.19. Last, the results yielded $\beta = 0.29$ (Wald $\chi^2 = 234.28$, $p < .01$) for mathematics skills. As mathematics skills increase by one point, the log odds of being in a higher category of classroom setting increases by 0.29. All but the use of AAC contribute to a higher-level category of classroom setting. However, these results are not conclusive, and limitations are discussed later.

Discussion

Although the greatest percentage of students who take a state AA-AAS receive special education services through the IDEA categories of intellectual disability, multiple disabilities, and autism, students who take the AA-AAS are placed into separate settings (e.g., self-contained classrooms, separate schools, or home, hospital, or residential settings) much more frequently than students overall in any of these categories. For example, according to 2009–2010 U.S. Department of Education data, 55% of students with intellectual disability, 71% of students with multiple disabilities, and 44% of students with autism were served across separate settings (Data Accountability Center, 2012). Yet, for students participating in the AA-AAS across our 15-state sample, a total of 93% were served primarily in self-contained classrooms, separate schools, or home, hospital, or residential settings. Conversely, in considering less restrictive placements (i.e., regular education or resource room settings), whereas nationally, 44% of all students with intellectual disabilities, 29% of students with multiple disabilities, and 55% of students with autism were served in regular education or resource room settings, only 7% of students in their respective state AA-AAS were served in either regular education placements (i.e., 80% or more of the day in the general education classroom) or resource room placements (i.e., 40% to 79% of the day in a general education classroom). Some of this variance, of course, can be explained by the fact that students in the AA-AAS represent students with the most significant cognitive disabilities, and one would expect that their needs might require more specialized supports and settings. Indeed, the current study found at least partial support for the relationship of educational placement and severity of disability: Across our 39,833-student database, students in the AA-AAS who had the least communicative competence, students who used AAC, and students with the fewest academic skills in reading and mathematics were most likely to be served in separate settings.

Although the greatest percentage of students who take a state AA-AAS receive special education services through the IDEA categories of intellectual disabilities, multiple disabilities, and autism, students who take the AA-AAS are placed into separate settings much more frequently than students overall in any of these categories.

Although we did find that level of severity predicted educational placement at an individual student level across all 39,833 students, there were state-level variations in educational placements (most notably in percentage of students in the AA-AAS in general education or resource room settings) that could not be attributed to student characteristics within a given state.

Second, although we certainly recognize that access to the general curriculum is not the same thing as access to general education settings, can we really say that students with the most significant cognitive disabilities participating in a state AA-AAS have meaningful

access to the general curriculum, given the level of separateness in their educational placements? Moreover, given that access to the general curriculum means instruction explicitly linked to grade-level content standards, and that curriculum is both *what* is taught and *how* it is taught (Jackson et al., 2008–2009; Ryndak et al., 2013), can we speak of full access to that curriculum for students with the most significant cognitive disabilities if they are taught largely or even totally apart from the presence of students without disabilities (see Hunt et al., 2012)? The findings from the current study must also be placed in the context of the research of Fisher and Meyer (2002), which focused on comparative gains for students with the most significant cognitive disabilities across four states in inclusive and self-contained settings. Although not specifically focused on instructional targets within the general curriculum, Fisher and Meyer nevertheless found that students in inclusive settings made greater gains in independence and social skills than similar students in self-contained settings. It is troubling that these increased opportunities for skill acquisition and independence associated with inclusive settings are not available to the vast majority of students who participate in a state AA-AAS.

Implications for Policy and Practice

Until this study, the extent to which students with the most significant cognitive disabilities (within a large multistate sample) are excluded from regular, inclusive classroom settings was not readily known. In fact, students with the most significant cognitive disabilities are placed in separate classrooms and separate schools at a considerably higher rate than the IDEA categories from which their numbers typically come (intellectual disability, multiple disabilities, and autism). The subsequent information presents policy and practice implications from the data yielded by the current study.

Policy. First, variations in individual state LRE data in this study suggest (as do several other studies) that states do not interpret LRE for students with significant cognitive disabilities in precisely the same way. This finding is consistent with Danielson and Bellamy's (1988) classic study and with the most recently available IDEA data that reflect substantial variation in LRE placement across states, in terms of both overall placement of students with disabilities and LRE placement for students receiving services through specific IDEA categories (U.S. Department of Education, 2012). Although the effect size in the current study was small, variations in LRE for students across our 15-state sample do not appear to be related to systematic differences in learner characteristics (communication, reading and math skills) across those states. At the federal policy level, we need to ask, (a) Do IEP teams truly consider the possibility of general education class participation for all students as an integral part of individualized educational planning? and (b) Can we expect that students with the most significant cognitive disabilities will have meaningful access to the general curriculum when all but 7% of these students are served primarily in separate settings? Although we cannot minimize the complexities of individual educational placement decisions for students with the most significant disabilities (Bouck, 2012; Giangreco, 2006; Heward, 2013), or the requirements under IDEA for districts to offer a full continuum of alternative placements, we believe these are fundamental policy questions.

Practice. In regard to practice for special education teachers, access to the general curriculum is dependent upon all teachers learning research-validated methods. These include embedded instruction (Jameson, McDonnell, Polychronis, & Riesen, 2008; McDonnell et al., 2006; McDonnell, Johnson, Polychronis, & Reisen, 2002) and curricular models that embed functional skill instruction in academic core content and vice versa (Collins, Evans, Creech-Galloway, Karl, & Miller, 2007; Collins, Karl, Riggs, Galloway, & Hager, 2010; Kleinert, Collins, Wickham, Riggs, & Hager, 2010) while also encouraging peer support strategies (Cushing, Carter, & Moss, 2011) in

the classroom. In a review of 17 studies that met, or nearly met, all research quality indicators for establishing evidence-based practices, Hudson, Browder, and Wood (2013) found specifically that embedded instructional trials, delivered through constant time delay, was an evidence-based practice for students with significant cognitive disabilities in general education settings. Although more research is clearly needed, students with significant cognitive disabilities can learn academic content with their peers in general education settings, and there is an emerging body of effective strategies for delivering that instruction.

There is also a need to ensure the presence of communication systems to help students access the general curriculum (Kearns et al., 2011; Towles-Reeves et al., 2009). Towles-Reeves et al. (2012) found that 60% of all students who communicated primarily through cries, facial expressions, change in muscle tone, and so on with no clear use of objects or textures, regularized gestures, pictures, signs, and so on also did not have access to ACC. Approximately 10% of high school students in the Towles-Reeves et al. (2012) study did not have a formal means of symbolic communication. Of this 10%, over half (54%) did not have access to an AAC system. Especially at the high school level, these data must be placed into the context that postschool outcomes for students with the most significant cognitive disabilities are fundamentally related to the presence of a communication system (see Kleinert et al., 2002). At a very minimum, our results suggest that AAC is underutilized, especially for those students who have the most limited communicative competence.

Our results suggest that AAC is underutilized, especially for those students who have the most limited communicative competence

In reference to students with severe disabilities who use AAC, Ruppar, Dymond, and Gaffney (2011) noted that, "assuring that teachers have strategies to assure meaningful access to literary content, functional literacy skills, and communication instruction in inclusive educational environments should be a priority for teacher educators and researchers" (p. 110). The results from the current study support the need for practitioners to more thoroughly understand and implement the LRE for students with significant cognitive disabilities; given the negative relationship between use of AAC and placement in less restrictive settings in our study, this need is even more imperative for AAC users.

Limitations

As with any research study, limitations to the data and the inferences drawn from those data do exist. For the current study, these 15 states may not be representative of all states and entities in the United States, but this is the largest data set ever collected on students participating in the AA-AAS. Although we relied on teacher-reported data, we used the same definitions for student placement as the OSEP used in the 2007 child count data, and teachers are also the source for those data collected by each state in its annual child count data and subsequently reported to and compiled by OSEP. Thus the comparisons made in this study are intended to hold directly.

Further, we need to be careful that we do not interpret education in self-contained classrooms (60% or more of the school day), in which the majority of the students (83%) in our study spent their school day, to mean there was no access to typical peers in general education settings. Indeed, for 9% of students in this study, teachers did indicate that even though the primary placement for those students was a separate classroom, there were opportunities to attend grade-level core classes in such areas as math, reading, and so on.

Third, we used just one item each to measure overall math and reading achievement in this study. Different correlations between academic achievement and educational setting may have been obtained with finer measures of student achievement. Further, the negative relationship we obtained between the presence of AAC and placement in less restrictive settings is a finding of concern. We

simply do not know if the presence of AAC may have functioned in this study as a "proxy" for severity of impact or if students who use AAC are simply less likely to be placed in more inclusive educational settings. Clearly, for students who do need AAC, meaningful participation in general education settings is not possible without a consistent mode of communication.

Fourth, we did not assess the quality of AAC usage and supports provided to students in this study. Rather, we asked a single, dichotomous question as to whether the student used "an augmentative communication system in addition to or in place of oral speech." Thus, we are cannot describe the particular forms of assistive technology students used, the appropriateness of the supports and instruction provided in using the AAC, or the students' skills in using those systems with school staff or classroom peers. These are each important variables for future study.

Fifth, although our overall response rate was moderately strong (51.5% for all students in the alternate assessment across all 15 states), there was a very substantial variation in individual state response rates. Some states in our sample had very robust response rates (at or near 100%), though not all states did (with the lowest state at 15%). We cannot place as much credence on state-by-state comparisons, especially individual state LRE data, with that level of response rate variability across states.

Last, it is important to recognize the multicollinearity, or interrelationships, among the variables used in the study. It is difficult to parse out the effects of one variable, such as the use of AAC, from other variables, such as reading skills, when they are highly correlated. All of the variables used in these studies often highly correlate, which makes it difficult to discern the amount of unique variance for which any individual variable accounts. Although the variables included as predictors in this study seem to be significant predictors of classroom setting, we suggest the further study of other possible predictor variables, including state-level characteristics.

Future Research

Based on our current study, there is a great need for additional research on how students with significant disabilities can achieve at high rates in the context of general educational settings. Although there are multiple studies that describe the effectiveness of evidence-based strategies in general education settings (Collins et al., 2007; Jameson et al., 2008; Jimenez et al., 2012; McDonnell et al., 2002, 2006), these have been done in a limited number of classrooms with a relatively small number of students (Hudson et al., 2013). Although it is important that this line of research expand to include students at all grade levels and content areas, perhaps most needed are studies that show how schools, districts, and whole states can take these strategies to scale. The field of implementation science holds considerable promise for such a scale-up (Cook & Odom, 2013). A focus on state- and district-level leadership (Fixsen, Blase, Metz, & Van Dyke, 2013), school-level interventions that are aligned with current school and district instructional priorities (Klingman, Boardman, & Stoolmiller, 2013), and contextualized coaching and professional development (Harn, Parisi, Danielle, & Stoolmiller, 2013) have all been identified as important elements of effective systems interventions. Although not framed specifically in the terminology of implementation science, Ryndak, Reardon, Benner, and Ward (2007) found that students with significant disabilities gained increased, active participation in general education classes with the alignment of district and school policies, carefully structured support systems at each level, and the shared ownership of all stakeholders, including administrators, general and special education teachers, related service personnel, and parents. Within this context of systems-level interventions, Ryndak et al. (2013) suggested that response to intervention (RTI) be reconceptualized as embracing all students with disabilities, including students with the most significant disabilities, and that Tier III (referral and placement in special education) should refer to the intensity of services

and supports and not the student's physical placement. As these authors noted, placing LRE for students with the most significant disabilities into the context of an intensity-of-services RTI model also creates the potential for the co-ownership of instruction of students with significant disabilities, with general education as an essential partner in that ownership.

That we have clear evidence of the benefits for including students with the most significant cognitive disabilities in general education activities with their peers, as well as effective strategies for doing so, makes the results of this study all the more imperative.

To date, the principles of implementation science have perhaps been applied most rigorously within special education to effective scaling-up practices for the implementation of schoolwide positive behavioral supports (SWPBS; Klingman et al., 2013). McIntosh et al. (2013) found that two factors were most predictive of sustaining the implementation of SWPBS: (a) at the school level, the extent to which teams functioned cohesively and used data-based decision making; and (b) at the district level, the extent of capacity building (e.g., ongoing professional development, the presence of expert coaches, teacher communities of practice). Similar studies are essential in ensuring the classroom-based practices that enable students with the most significant cognitive disabilities to learn grade-level content alongside their nondisabled peers can be replicated, scaled, and sustained at the school, district, regional, and state levels.

Conclusion

In the context of a growing research body that demonstrates that students with the most significant cognitive disabilities can effectively learn academic content in general education classes (Collins et al., 2007; Hudson et al., 2013; Jameson et al., 2008; Jimenez et al., 2012; McDonnell et al., 2002, 2006), we have to question why students with the most significant cognitive disabilities are the least likely of any students to experience those settings. Moreover, as McDonnell and his colleagues (Jameson et al., 2008, McDonnell et al., 2002, 2006) have demonstrated, strategies such as embedded instruction provide the carefully planned and precisely delivered instruction that students with the most significant cognitive disabilities need most to acquire, maintain, and generalize skills (Heward, 2013). There is growing research that not only can these students learn in general education settings but that this learning can be mediated and supported by peers without disabilities (Carter et al., 2009; Cushing et al., 2011; Jimenez et al., 2012), whose own educational performance is not diminished and is at times even enhanced by their interactions with and support of their peers with significant cognitive disabilities (see Cushing et al., 2011; Jimenez et al., 2012). That we have clear evidence of the benefits for including students with the most significant cognitive disabilities in general education activities with their peers, as well as effective strategies for doing so, makes the results of this study all the more imperative. Our findings simply illustrate the gap between what is reality in the lives of these students and what could possibly be.

References

Bouck, E. (2012). Secondary students with moderate/severe intellectual disability: Considerations of curriculum and post-school outcomes from the National Longitudinal Transition Study–2. *Journal of Intellectual Disability Research*, *56*, 1175–1186. doi:10.1111/j.1365-2788.2011.01517.x

Cameto, R., Bergland, F., Knokey, A., Nagle, K., Sanford, C., Kalb, & Oretega, M. (2010). *Teacher perspectives of school-level implementation of alternate assessments for students with significant cognitive disabilities*. Washington, DC: U.S. Department of Education, Institute of Education Sciences.

Carter, E., Sisco, L., Brown, L., Brickham, D., & Al-Khabbaz, Z. (2009). Peer interactions and academic engagement of youth with developmental disabilities in inclusive middle and high school classrooms. *American Journal*

on Mental Retardation, *113*, 479–494. doi:10.1352/2008.113:479-494

Collins, B. C., Evans, A., Creech-Galloway, C., Karl, J., & Miller, A. (2007). Comparison of the acquisition and maintenance of teaching functional and core content sight words in special and general education settings. *Focus on Autism and Other Developmental Disabilities*, *22*, 220–233. doi:10.1177/10883576070220040401

Collins, B. C., Karl, J., Riggs, L., Galloway, C. C., & Hager, K. L. (2010). Teaching core content with real-life applications to students with moderate and severe disabilities. *TEACHING Exceptional Children*, *43* (1), 52–59.

Cook, B., & Odom, S. (Guest Eds.). (2013). Evidenced-based practices [Special issue]. *Exceptional Children*, 79, 134–251.

Cushing, L., Carter, E., & Moss, C. (2011, December). *Peer support strategies to promote inclusive education: An evidence-based practice*. Paper presented at the International TASH Conference, Atlanta, GA.

Danielson, L. C., & Bellamy, G. T. (1988). *State variation in placement of children with handicaps in segregated environments*. Washington, DC: U.S. Office of Special Education and Rehabilitative Services.

Data Accountability Center. (2012). *Data tables for OSEP state reported data: Part B educational environment*. Retrieved from http://tadnet.public.tadnet.org/pages/712

Fisher, M., & Meyer, L. (2002). Development and social competence after two years for students enrolled in inclusive and self-contained educational programs. *Research and Practice in Severe Disabilities*, *27*, 165–174. doi:10.2511/rpsd.27.3.165

Fixsen, D., Blase, K., Metz, A., & Van Dyke, M. (2013). Statewide implementation of evidence-based programs. *Exceptional Children*, *79*, 213–232.

Giangreco, M. (2006). Foundational concepts and practices for educating students with severe disabilities. In M. Snell & F. Brown, *Instruction of students with severe disabilities* (6th ed.; pp. 1–27). Upper Saddle River, NJ: Pearson.

Harn, B., Parisi, D., & Stoolmiller, M. (2013). Balancing fidelity with flexibility and fit: What do we really know about fidelity of implementation in schools? *Exceptional Children*, *79*, 181–194.

Heward, W. (2013). *Exceptional children: An introduction to special education* (10th ed.). Upper Saddle River, NJ: Pearson.

Hudson, M., Browder, D., & Wood, L. (2013). Review of experimental research on academic learning by students with moderate and severe intellectual disability in general education. *Research and Practice in Severe Disabilities*, *38*, 17–29. doi:10.2511/027494813807046926

Hunt, P., McDonnell, J., & Crockett, M. (2012). Reconciling an ecological curricular framework focusing on quality of life outcomes with the development and instruction of standards-based academic goals. *Research and Practice in Severe Disabilities*, *37*, 139–152. doi:10.2511/027494812804153471

Individuals With Disabilities Education Act, 20 U.S.C. §§ 1400 *et seq* (2006 & Supp. V. 2011).

Jackson, L., Ryndak, D., & Wehmeyer, M. (2008–2009). The dynamic relationship between context, curriculum, and student learning: A case for inclusive education as a research-based practice. *Research and Practice for Persons With Severe Disabilities*, *33*(4)/*34*(1), 175–195. doi:10.25.2511/rpsd.33.4.175.

Jameson, J. M., McDonnell, J., Polychronis, S., & Riesen, T. (2008). Embedded, constant time delay instruction by peers without disabilities in general education classrooms. *Intellectual and Developmental Disabilities*, *46*, 346–363. doi:10.1352/2008.46:346-363

Jimenez, B., Browder, M., Spooner, F., & DiBiase, W. (2012). Inclusive inquiry science using peer mediated embedded instruction for students with moderate intellectual disability. *Exceptional Children*, *78*, 301–317.

Kearns, J. F., Kleinert, H. L., Kleinert, J. O., & Towles-Reeves, E. A. (2006). *Learner Characteristics Inventory*. Lexington: University of Kentucky, National Alternate Assessment Center.

Kearns, J. F., Towles-Reeves, E., Kleinert, H., Kleinert, J., & Thomas, M. (2011). Characteristics of and implications for students participating in alternate assessments based on alternate academic achievement standards. *Journal of Special Education*, *45*, 3–14. doi:10.1177/0022466909344223

Kleinert, H., Collins, B., Wickham, D., Riggs, L., & Hager, K. (2010). Embedding life skills, self-determination, social relationships, and other evidenced based practices. In H. Kleinert & J. Kearns, *Alternate assessment for students with significant cognitive disabilities: An educator's guide* (pp. 267–289). Baltimore, MD: Paul Brookes.

Kleinert, H., Garrett, B., Towles, E., Garrett, M., Nowak-Drabik, K., Waddell, C., & Kearns, J.

(2002). Alternate assessment scores and life outcomes for students with significant disabilities: Are they related? *Assessment for Effective Intervention*, *28*, 19–30. doi:10.1177/073724770202800103

Kleinert, H., Quenomoen, R., & Thurlow, M. (2010). An introduction to alternate assessments: Historical foundations, essential parameters, and guiding principles. In H. Kleinert & J. Kearns, *Alternate assessment for students with significant cognitive disabilities: An educator's guide* (pp. 3–18). Baltimore, MD: Paul Brookes.

Klingman, J., Boardman, A., & Stoolmiller, M. (2013). What does it take to scale up and sustain evidence-based practices? *Exceptional Children*, *79*, 195–212.

McDonnell, J., Johnson, J. W., Polychronis, S., & Reisen, T. (2002). The effects of embedded instruction on students with moderate disabilities enrolled in general education classes. *Education and Training in Mental Retardation and Developmental Disabilities*, *37*, 363–377.

McDonnell, J., Johnson, J. W., Polychronis, S., Riesen, T., Jameson, M., & Kercher, K. (2006). Comparison of one-to-one embedded instruction in general education classes with small group instruction in special education classes. *Education and Training in Developmental Disabilities*, *41*, 125–138.

McIntosh, K., Mercer, S., Hume, A., Frank, J., Turri, M., & Matthews, S. (2013). Factors related to sustained implementation of schoolwide positive behavioral supports. *Exceptional Children*, *79*, 293–312.

National Center and State Collaborative. (2012). *Draft participation guidelines*. Minneapolis: University of Minnesota.

No Child Left Behind Act of 2001, 20 U.S.C. §§ 6301 *et seq* (2006 & Supp. V. 2011).

Ruppar, A., Dymond, S., & Gaffney, J. (2011). Teachers' perceptions of literacy instruction for students with severe disabilities who use augmentative and alternative communication. *Research and Practice for Persons with Severe Disabilities*, *36*, 100–111. doi:10.2511/027494811800824435

Ryndak, D., Jackson, L., & White, J. (2013). Involvement and progress in the general curriculum for students with extensive support needs: K–12 inclusive-education research and implications for the future. *INCLUSION*, *1*, 28–49.

Ryndak, D., Reardon, R., Benner, S., & Ward, T. (2007). Transitioning to and sustaining district-wide inclusive services: A 7-year study of a district's ongoing journey and its accompanying complexities. *Research and Practice in Severe Disabilities*, *32*, 228–246. doi:10.2511/rpsd.32.4.228

Smith, P. (2007). Have we made any progress? Including students with intellectual disabilities in regular education classrooms. *Intellectual and Developmental Disabilities*, *45*, 297–309. doi:10.1352/0047-6765(2007)45[297:HWMAPI]2.0.CO;2

Towles-Reeves, E., Kearns, J, Flowers, C., Hart, L., Kerbel, A., Kleinert, H., Quenemoen, R., & Thurlow, M. (2012). *Learner characteristics inventory project report (A product of the NCSC validity evaluation)*. Minneapolis: University of Minnesota, National Center and State Collaborative.

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*, 241–254. doi:10.1177/0022466907313451

U.S. Department of Education. (2004). *Standards and assessment peer review guidance*. Washington, DC: Author.

U.S. Department of Education. (2005). *Alternate achievement standards for students with the most significant cognitive disabilities: Non regulatory guidance*. Washington, DC: Author.

U.S. Department of Education, Office of Special Education and Rehabilitative Services, Office of Special Education Programs. (2011). *30th annual report to Congress on the implementation of the Individuals With Disabilities Education Act, 2008* (Vol. 1). Washington, DC: Author.

U.S. Department of Education, Office of Special Education and Rehabilitative Services, Office of Special Education Programs. (2012). *31st annual report to Congress on the implementation of the Individuals With Disabilities Education Act, 2008* (Vol. 1). Washington, DC: Author.

Authors' Note

This work was supported by a grant from the U.S. Department of Education, Office of Special Education Programs (H373X100002, Project Officer: Susan.Weigert@ed.gov). The contents do not necessarily represent the policy of the U.S. Department of Education, and no assumption of endorsement by the federal government should be made.

Manuscript received July 2013; accepted April 2014.