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Characteristics of Students with Significant Cognitive Disabilities:
Data from NCSC's 2015 Assessment

Introduction

Understanding the characteristics of students with significant cognitive disabilities provides a foundation for understanding how learning occurs for these students. Understanding how they learn, in turn, is an essential step in developing an alternate assessment based on alternate achievement standards (AA-AAS).[1]

The National Center and State Collaborative (NCSC) used the *Learner Characteristics Inventory* (LCI)[2] as one source of information on the characteristics of students with significant cognitive disabilities who participated in its AA-AAS.[3] The LCI is a survey that teachers complete for each student, prior to the student participating in the AA-AAS. Data from the LCI reflect the teachers' perceptions of the student's characteristics at that point in time in the school year.

In addition to providing information on student characteristics, LCI data can flag unusual patterns in the numbers that might suggest that the AA-AAS participation criteria were not applied appropriately, which would indicate the need for additional investigation. For example, discovering large numbers of students who are reading with critical understanding and computing to solve real-world problems might suggest the need to explore whether students were appropriately assigned to the AA-AAS rather than the general assessment.

LCI data also can be used to document change over time. Teachers' perceptions of the characteristics of the students who participate in the NCSC AA-AAS are expected to change as educators better understand how to present grade-aligned instruction and assessment and communication intervention to these students.[4]

The purpose of this Brief is to summarize the LCI data collected by NCSC during its operational assessment in Spring, 2015.[5] LCI data show how teachers currently describe their students, but do not indicate what to do to teach and assess them.

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

[2]Kearns, J. F., Kleinert, H. L., Kleinert, J. O., & Towles-Reeves, E. (2006). *Learner characteristics inventory.* Lexington: University of Kentucky, National Alternate Assessment Center.

[3]NCSC recognized the limitations of the LCI, and used it as one source of information on student characteristics. The LCI reflects teachers' perceptions of their students with significant cognitive disabilities, and teacher perceptions may be limited by past beliefs about the possibilities for students with significant cognitive disabilities.

[4]Browder, D. M., Flowers, C., Wakeman, S., Lee, A., Quenemoen, R. F., & Thurlow, M. L. (2015). *NCSC's content model for grade-aligned instruction and assessment: "The same curriculum for all students"* (NCSC Brief #7). Minneapolis, MN: University of Minnesota, National Center and State Collaborative.

[5]The information included in this Brief is based on operational assessment LCI data from 15 states.

Other NCSC Briefs are available to describe best practices in teaching and assessing students who participate in AA-AAS.[6]

Disability Categories

Disability categorical labels are one proxy for understanding the characteristics of students who participate in the AA-AAS, but they do not define what the student knows or is able to do. Disability categories are identified in the Individuals with Disabilities Education Act (IDEA). States develop the criteria to be used for determining the primary disability category assigned to students in their states, and these criteria may differ from state to state. Within a state, they may be applied differently across local education agencies. There are several reasons why the primary IDEA category of students may occasionally be inaccurate in the LCI data.[7] Official state data banks may provide more accurate data overall, but teacher reports of student categorical labels when administering an AA-AAS permit a general description of the students who participate each year.

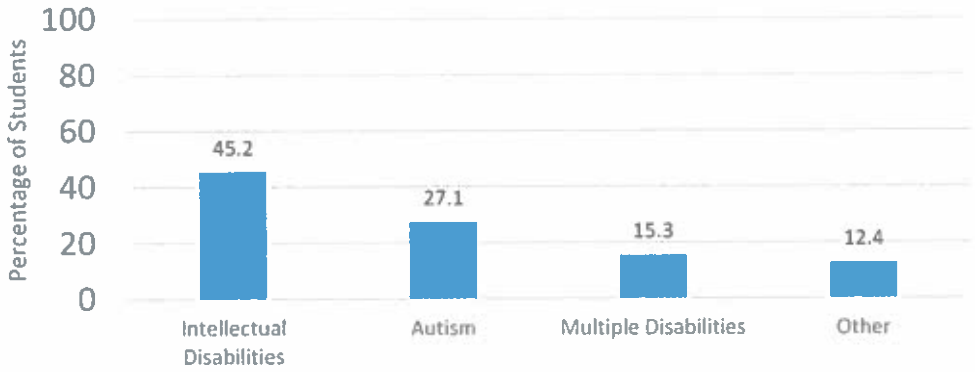
As shown in Figure 1, three IDEA categories were most often reported by teachers for their students who participated in the NCSC AA-AAS: Intellectual Disabilities, Autism, and Multiple Disabilities. These categories accounted for 87.6% of the students who participated in the NCSC AA-AAS in Spring, 2015.[8] Students reported as having other primary categorical labels accounted for 12.4% of the students in the AA-AAS.[9]

Communication

Communication characteristics of students are fundamental in understanding how students are able to first learn and then demonstrate their knowledge and skills on the AA-AAS. Both receptive and expressive communication skills are essential to communication, and the annual profile of communication skills for the tested population helps track whether and where students need additional support or intervention. Use of Alternative and Augmentative Communication (AAC) is an important avenue of access for those students who may lack expressive communication. Complicating the communication picture is whether students are English learners.

As is evident in Figure 2, the majority of students who participated in the AA-AAS were

Figure 1. Categorical Labels



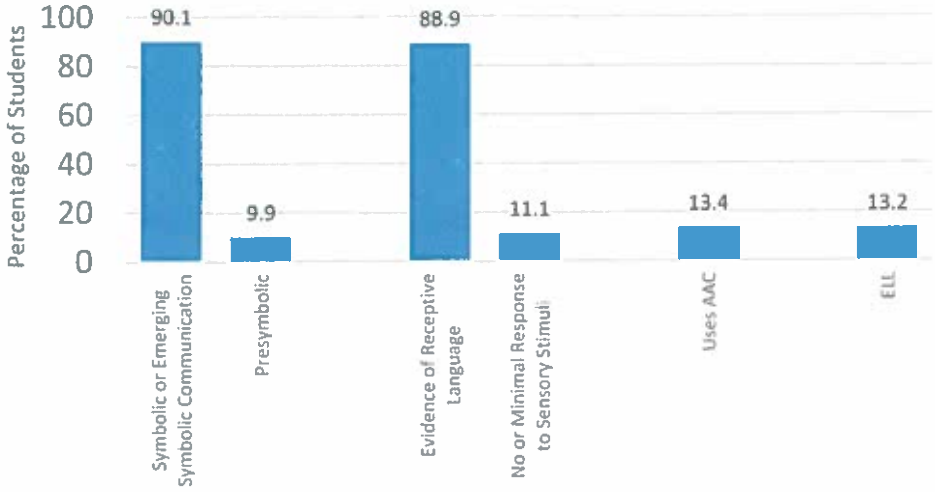
[6]See NCSC Briefs available at http://www.ncscpartners.org.

[7]For example, teachers may not accurately recall the IEP team determination of primary disability.

[8]Only students for whom LCI data were available are included in the percentages shown here. For IDEA category, 6.7% of all students in the NCSC AA-AAS had missing data.

[9]These categories may be assigned to students in response to parent requests, even though that primary disability label may not seem consistent with AA-AAS participation. They also may be reported by teachers when another categorical label actually has been assigned to the student.

Figure 2. Communication



reported by their teachers as using symbolic expressive communication; less than 10% were considered by their teachers to use pre-symbolic communication. Similarly, most students were reported as evidencing receptive communication; approximately 11% showed no response to stimuli.[10] The majority of all students in the NCSC AA-AAS did not use AAC (only about 13% did), although these responses do not indicate whether students need AAC but do not yet have it. The majority of students were not English language learners (ELLs).

Vision, Hearing, and Motor

Access to instruction and to demonstrating knowledge and skills on the AA-AAS can be impeded if a student has no functional use of vision or low vision for daily living. Similarly, students with profound or significant hearing loss may have difficulty accessing instruction or assessments. Significant motor challenges can also limit access. Figure 3 shows that the majority of students with significant cognitive disabilities do not have significant vision impairments (94.0%), hearing impairments (96.2%), and motor functioning limitations (91.2%).[11] Only 2.2% of students in the NCSC AA-AAS had no functional use of vision, and only 1.8% had no evident functional use of hearing.

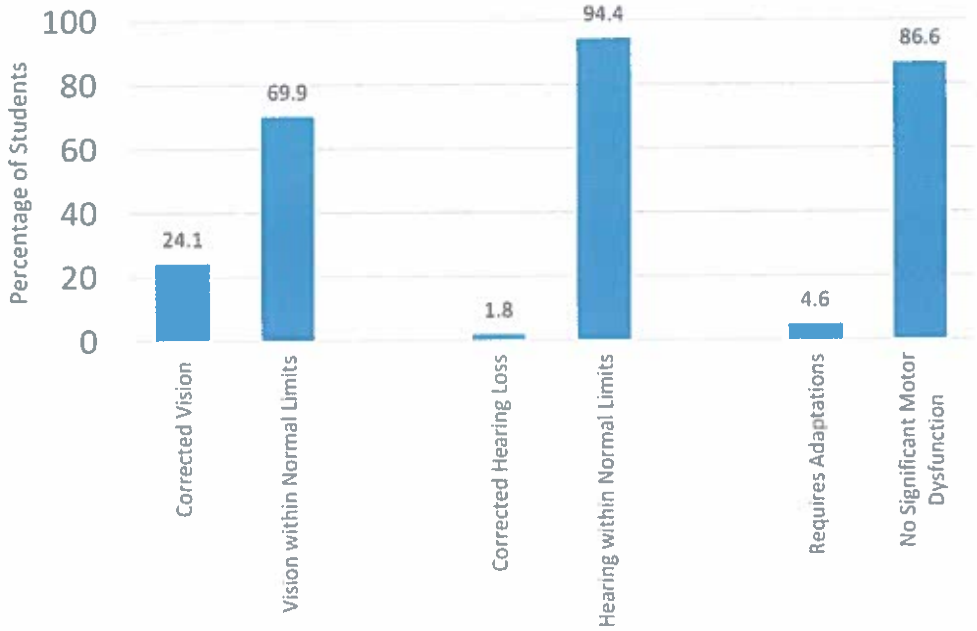
Classroom Settings

Students with significant cognitive disabilities who participated in the NCSC operational assessment were educated primarily in non-general education classes (see Figure 4). Over

[10]For Figure 2, symbolic communication included both "symbolic" and "emerging symbolic" expressive communication. Receptive language included both "independently follows 1-2 step directions" and "requires additional cues." Only students for whom LCI data were available are included in the percentages shown here. For expressive communication, 4.9% of all students in the NCSC AA-AAS had missing data. The percentages of missing data for other variables in the figure were 4.9% for receptive language, 5.3% for AAC, and 5.2% for EL status. For definitions, see 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, MN: University of Minnesota, National Center and State Collaborative.

[11]For Figure 3, no significant motor dysfunction included "requires adaptations to support motor functioning" and "no significant motor dysfunction that requires adaptations." The need-based variables in Figure 3 are different from categorical labels, which indicated that about 1.1% of students had the primary disability category label of visual impairment, hearing impairment, or deaf/blindness. Only students for whom LCI data were available are included in the percentages shown in Figure 3. Missing data for the variables in Figure 3 were 5.3% for vision, 5.1% for hearing, and 5.7% for motor, of all students in the NCSC AA-AAS.

Figure 3. Vision, Hearing, Motor



87% of students were educated primarily in segregated settings such as self-contained special education classrooms with academic inclusion (15.1%) or with some non-academic inclusion (64.4%) or a special school (8.2%).[12] Only 12.3% of the students were educated either primarily in resource rooms with some time in a general education class or in an inclusive/collaborative general education class.[13]

Academic Skills (Reading and Math)

Teachers' perceptions of their students' skills in reading and math are shown in Figure 5.[14] For **reading**, teachers indicated that most students had some skills, reading basic sight words and simple sentences (40.1%), reading fluently with literal understanding (24.5%), or reading fluently with critical understanding (3.3%). Approximately equal percentages were only aware of text or braille (16.5%) or had no observable awareness of these (15.6%). For **math**, teachers indicated that most students had some skills, counting by rote to 5 (8.6%), counting with 1:1 correspondence to at least 10 (26.2%), computing (46.4%), or computing to solve real-life or routine word problems (4.8%). Approximately 14% had no observable awareness or use of numbers. These percentages are expected to change as educators

[12]For Figure 4, data were missing for 4.9% of all students in the AA-AAS.

[13]See Kleinert, H., Towles-Reeves, E., Quenemoen, R., Thurlow, M., Fluegge, L., Weseman, L., & Kerbel, A. (2015). Where students with the most significant cognitive disabilities are taught. *Exceptional Children*, *81*(3), p. 312-328, but note that it is based on data collected at project baseline. Project baseline data include states that did not participate in the operational assessment, and did not include all operational states. For the NCSC AA-AAS operational data, 4.9% of all students were missing data.

[14]In Figure 5, "reading skills evident" includes "reading basic sight words and simple sentences," "reading fluently with literal understanding," and "reading fluently with critical understanding." "Math skills evident" includes "counting by rote to 5," "counting with 1:1 correspondence to at least 10," "computing," and "computing to solve real-life or routine word problems." Only students for whom data were available are included in the percentages shown here. For Reading, 4.9% of all students in the NCSC AA-AAS had missing data. For Mathematics, 4.9% of all students in the NCSC AA-AAS had missing data.

Figure 4. Classroom Setting

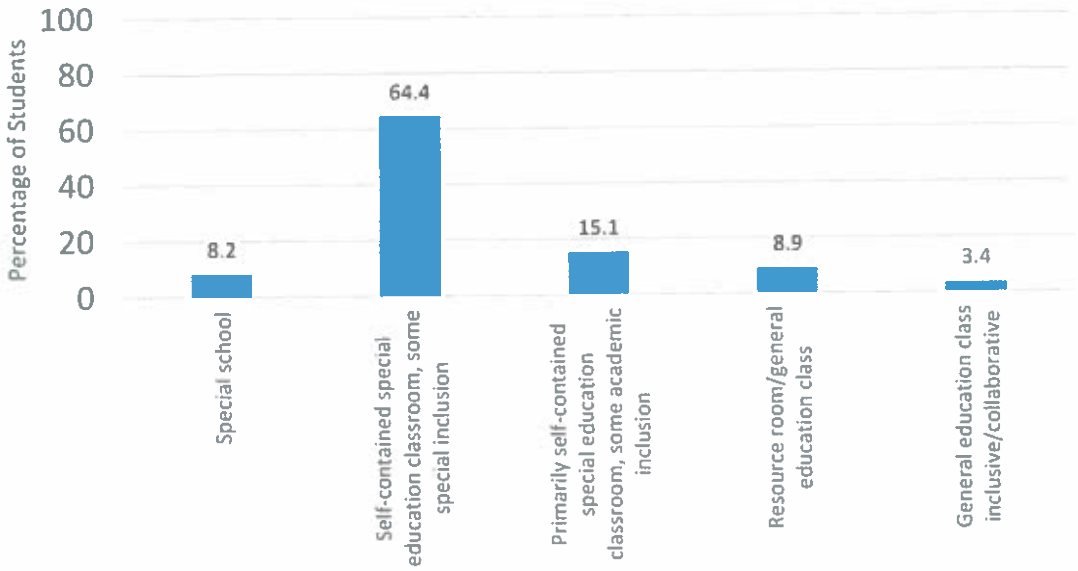
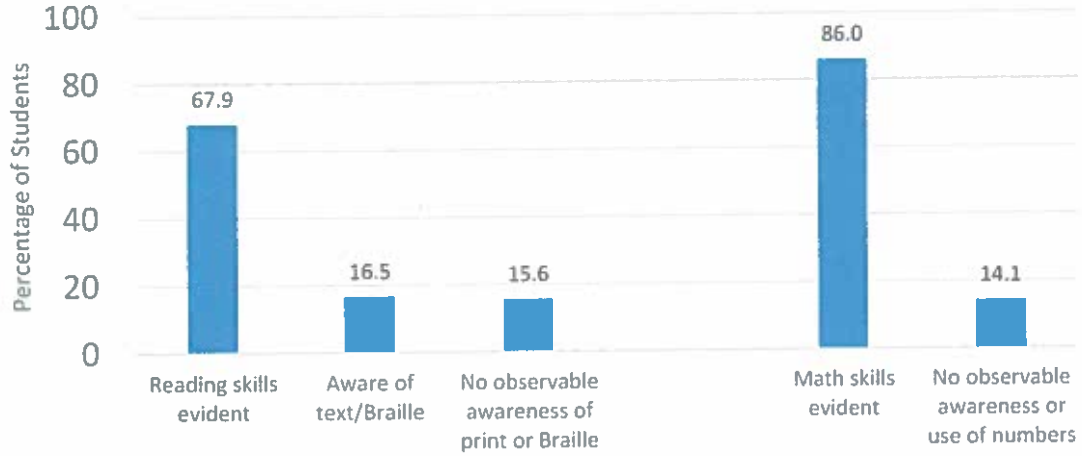


Figure 5. Reading and Math



increasingly provide grade-aligned instruction to their students with significant cognitive disabilities.

Summary

Despite the cautions that must be heeded when considering the LCI data as indicators of the characteristics of students with significant cognitive disabilities who participated in the operational NCSC AA-AAS in Spring, 2015, they provide an important source of information on characteristics of these students. That in turn can inform the design and development of appropriate instruction and assessments. Another use of these data can be to flag anomalies that need to be investigated. For example, a finding that a larger than average percentage of students has no observable means of communication should prompt a state to examine its professional development on how to promote communicative competence for students who appear to have none. An indication that more students with learning disability, speech-language impairment,

and other health impairment IDEA categorical labels that typically do not reflect significant cognitive disabilities might prompt a state to follow-up on the extent to which the AA-AAS participation criteria are being adhered to; the need for additional professional development or training materials on participation criteria might also be warranted.[15]

The LCI data are also important for documenting changes in teachers' perceptions of the characteristics of their students with significant cognitive disabilities. As appropriate interventions occur, such as those focused on communication, increased access to appropriate Alternative and Augmentative Communication and more academic instruction for these students, the perceived characteristics of students with significant cognitive disabilities would be expected to change.

The LCI data can be triangulated with other data that a state might collect, including primary disability category, scores on the reading and math AA-AAS, and so on. Refining the approach to documentation of characteristics can take place over time to create multiple measures that more accurately reflect student characteristics to ensure students receive appropriate instruction as well as are appropriately placed in large-scale assessments.

Overall, the NCSC operational LCI data indicate that most students who participated in the Spring, 2015 NCSC AA-AAS were students with intellectual disabilities, autism, and multiple disabilities. They had expressive and receptive communication skills, did not use Alternative and Augmentative Communication (AAC), and were not English learners. Few had significant limitations due to vision, hearing, or motor impairments. Even though these students were primarily educated in segregated settings, most had some reading and math skills. The LCI data also indicate that while most of the students had these characteristics, there were small numbers without communication systems, with significant vision, hearing, or motor limitations, or with no observable skills in reading and math.

[15]A student may be assigned a secondary disability label consistent with participation in the AA-AAS, even though his or her primary disability label may not seem consistent with AA-AAS participation.