*Teaching Tips*

# Assessing Language and Literacy of Students with Developmental Disabilities and Complex Communication Needs

## Heather S. Riddle

*University of North Georgia, Dahlonega, GA*

**ABSTRACT**

Students with developmental disabilities and complex communication needs are impacted by assessments that may not show their ability or address their needs. Multiple modes of assessment presentation and response formats, augmentative and alternative communication approaches, and assistive technology may help students engage more equitably in literacy assessment activities. The Nonverbal Literacy Assessment (NVLA) is an example of a tool used to assess the language and literacy skills of students with disabilities in various formats. Augmentative and Alternative Communication (AAC), eye-gazing, and speech-generating device (SGD) technology are also used to make assessment more accessible to students with developmental disabilities and speech difficulties.

**KEYWORDS**

assessment; developmental disabilities; communication needs; language and literacy skills

As an educator of nearly thirty years, I place great importance on assessing students with reliability and validity. However, assessing students with developmental disabilities and complex communication needs in the general education setting can be especially tricky in day-to-day classroom operations. For example, while working in a publicly funded pre-kindergarten classroom, I once taught a student who did not speak at school. According to the student's caregiver, conversations occurred in the home, but they were non-existent in the classroom. The assessment system used by the school required me to record evidence of contingent conversation and rate the student on a developmental checklist. This created a challenge because I did not have enough evidence to determine whether she could communicate verbally. Instead, I had to record examples of times that she did not respond so I could justify a rating of *not yet*. Although documenting the absence of communication was probably not ideal, there was a positive result. By continuing to speak to the child (if only to document that she was not responding), there were multiple opportunities for social engagement, which eventually led to a one-word response near the end of the school year. I imagine many other teachers have had similar experiences.

I wonder how much more progress could have been achieved if the assessment had been tailored to the student's abilities. Perhaps the assessment would have been more valid had I considered other forms of non-verbal communication rather than relying exclusively upon vocal speech. Additionally, I might have incorporated visual supports or technology to elicit more opportunities for communicative exchanges. In hindsight, I would have been better able to document my student's language development had I implemented a more expansive understanding of what constituted reciprocal communication, which might have been more in line with the spirit of the Individuals with Disabilities Act (IDEA).

**CONTACT** **Heather S. Riddle**, Graduate Student in Early Childhood Education with Autism Endorsement, University of North Georgia, Dahlonega, GA; email hsridd4220@ung.edu.

IDEA is a U.S. federal law that protects the educational rights of children with disabilities. Since the law's last reauthorization in 2004, updates have been made to serve students with disabilities more equitably. A 2016 revision addressed the over-representation of some children in special education programs, which could jeopardize their access to rigorous academic content in the least restrictive environment. Before IDEA, children with disabilities were often excluded from school. In the 2020–2021 school year, however, around two-thirds of students with disabilities spent at least 80% of their instructional day in the general education classroom (U.S. Department of Education, 2023).

Since many students with disabilities are already in the mainstream classroom and there appears to be a move toward increasing inclusivity, accurate literacy assessment of students with developmental disabilities and complex communication needs is crucial to facilitate their reasonable participation in general reading instruction. Unfortunately, these students are currently underrepresented in reading assessment data as many cannot participate in testing due to behavioral challenges or limited verbal ability (Fleming et al., 2018). Therefore, educators must find more inclusive ways to assess students with developmental disabilities and delays. Current methods may help determine eligibility for special education services by identifying weaknesses and deficits; however, we must also be able to identify what students **can** do so they are placed in the least restrictive environments that allow them to develop their strengths and abilities. This will create a more equitable learning environment for students who have too often been assessed and labeled based solely on their inability to conform to modes of performance that do not consider how they **can** demonstrate skills and abilities. Students with developmental disabilities and complex communication needs deserve the same academic prospects as their peers to reach their highest potential. A more thoughtful, flexible approach to assessment could contribute to that outcome.

This article presents a variety of tools that could be used to assess the language and literacy of students with developmental disabilities and complex communication needs. The section below describes how multiple assessment formats enhance student participation in literacy assessment, followed by a discussion of augmentative and alternative communication technologies that could increase access to literacy instruction and assessment if incorporated into mainstream classroom settings.

## Multiple Assessment Formats

One way to make assessment more available to students with developmental disabilities and complex communication needs is to provide multiple assessment formats. Presenting content in various ways and providing different response-type options can allow these students more opportunities to show what they know rather than merely display their inability to access content and/or communicate their understanding of it. Multiple assessment formats provide alternative ways for students to show what they have learned so that they can use a communication venue that works best for them.

One such assessment is the Nonverbal Literacy Assessment (NVLA), designed to evaluate the reading ability of students who utilize alternative augmentative communication or means of expressing themselves. This assessment includes six components: phonemic awareness, phonics, reading comprehension, listening comprehension, text awareness, and vocabulary. Answer choices are arranged in rows of two to four options, and students can respond by pointing, choosing cards, or eye-gazing (Ahlgrim-Delzell et al., 2011). The NVLA proposal document contains tables with some of the student performance tasks. It also provides the contact information of the

corresponding author. One of the authors of NVLA is also associated with the Early Reading Skills Builder (ERSB), which is available for purchase with other curriculum materials for students with disabilities at attainmentcompany.com/curriculum/ersb.

Multi-format assessment for students with developmental disabilities is supported by research. A pilot study at Baylor University used multiple methods to investigate the validity of norm-referenced language and literacy assessment for children with Down syndrome (DS). As with the NVLA, students could show their knowledge in multiple ways (Prahl & Shuele, 2022). Four parallel response measures of listening and reading comprehension were evaluated: non-verbal, cloze, passage with closed questions, and passage with open-ended questions. To address typically low performance on norm-referenced tests by individuals with DS, the researchers used multiple content presentations and answer formats to ensure participants with limited reading ability and speech articulation difficulties could respond to some items at the beginning of the assessment. This study lays the groundwork for creating and assessing reading interventions for children with DS through varied assessment types. It also sets the stage for learning the most effective ways to assess listening and reading comprehension of students with DS. If assessments are modified to match the communicative modes accessible to individuals with disabilities, children who have previously had limited participation in literacy assessment may be more fairly included in data that could impact the quality and appropriateness of education they receive (Prahl & Shuele, 2022).

Aidonopoulou-Read (2020) examined the impact of a differentiated approach with an adapted formative assessment for students with autism and significant learning challenges. This assessment considered both formative and summative assessments so that the relationship between the two could be used to assess whether students were learning. To establish the relationship, two checklists were created: one to measure academic progress and another to evaluate behavioral engagement. For example, the academic checklist contained literacy objectives, such as watching the teacher point to pictures or matching images to tangible items. The behavioral engagement checklist showed evidence, such as seeing a student turn toward a stimulus or observing a student's pleasant facial expression. The results indicated customized interventions were needed based on the differing motivations and needs observed through formative assessments. This modified assessment supports the simultaneous recording of formative and summative assessment data, which can be incorporated into daily classroom instruction. This is important because it creates more opportunities for students with different academic, social, and communication needs to participate in the classroom (Aidonopoulou, 2020). A modified assessment that evaluates both academic achievement and motivation would be useful to teachers for planning differentiated instruction based on students' needs and interests.

## Augmentative and Alternative Communication Technologies

Augmentative and Alternative Communication (AAC) systems are another method to increase participation of students with developmental disabilities and complex communication needs. These systems typically use labeled visual representations, such as pictures and photographs, to depict concepts. While traditional, motionless AAC supports may possibly interfere with the acquisition of sight words, proposed enhancements to AAC technology would incorporate research-based transition-to-literacy (T2L) features that would include a more interactive, animated presentation focusing on sight words and student interests. A study by Caron and colleagues in 2018 found that after an intensive intervention using the T2L feature, five school-aged students with autism spectrum disorder made gains of between 45% and 69% in sight-word

accuracy and were able to use the words they had learned to make comments about images shown to them. The study concluded that when AAC supports are incorporated into literacy instruction, people with communication challenges can better integrate into a community that often requires literacy to participate (Caron et al., 2018).

Some examples of AAC technology used in the Caron et al. (2018) study include software programs like News-2-You, PixWriter, and Writing with Symbols, which match or substitute written words with symbolic images (Table 1).

*Table 1: Software Programs that Match or Substitute Written Words with Symbolic Images*

| Software | Description | Link |
|---|---|---|
| News2You | Content is available online for purchase and includes news stories at four different reading levels with visual supports. Samples and demonstrations can also be accessed by following the link provided. | n2y.com/news2you/differentiation-accessibility |
| PixWriter | Uses voice output and pictures to help children struggling to read words learn to write by choosing illustrated buttons in a word bank. Documents created with this technology can be saved, printed, or emailed. Software subscriptions can be purchased and downloaded from the website of the Attainment Company or from the Apple App Store. | attainmentcompany.com/pixwriter-software |
| Writing with Symbols | A system produced by Widgit, has pictorial symbols in multiple languages and can be used to create differentiated flashcards, worksheets, and books. Templates are also available. Widgit products can be purchased through the link provided. | widgit.com/writing-with-symbols |

Eye-gazing technology and mechanical switches may also support more reliable assessment of students with disabilities that involve complex communication needs. Eye-gazing technology enhances participation by providing a response mode for students with cerebral palsy, who may not be able to answer verbally, use a pencil-paper bubble sheet, manipulate a mouse, or push buttons on a keyboard. Mechanical switches access devices that can produce digital or synthetic speech. The switches allow students to visually scan the options on a computerized multiple-choice test and then linger at the answer they wish to select. Buttons can also be added to allow students to indicate that they would like to change or confirm an answer choice. Researchers from Australia and the U.S. conducted a study with school-age students in Australia comparing standardized assessment results for typical children who took traditional tests with those of students who took assessments modified for use with mechanical switches or eye-gazing technology (Karlsson et al., 2022). The study's authors hypothesized that the two groups would not have a significant variation in test scores. Findings have not yet been published but are expected to be shared in peer-reviewed journals (Karlsson et al., 2022).

Equipment used in the Karlsson et al. (2022) study included Switch Access, Tobii PCEye mini eye-gaze control technology, and Grid 3 software:

*Table 2: Eye-Gazing Technology and Mechanical Switches*

| Item | Description | Link |
|---|---|---|
| Switch Access | These interface products, such as eyewear and remote-control buttons, are available at online stores that serve individuals with disabilities. Google also provides instructions for Switch Access on Android devices. | shorturl.at/oqMSW |
| Tobii PCEye | The Tobi PCEye mini has been discontinued, but Tobii Dynavox's latest eye-tracking products and accessories can be purchased through the first link provided on the right. The second link listed provides information about how to fund a device. | tobiidynavox.com/products/pceye<br><br>tobiidynavox.com/pages/funding |
| Grid 3 | Software packages with switches and eye-gazing devices can be purchased at the Smartbox website following the provided link. Some functions include environmental control, school and work tools, and interactive learning activities. | thinksmartbox.com/product/grid-3 |

Speech-generating devices (SGD) are another form of technology that can increase participation for students who are not able to vocalize communication. These devices produce speech by recording the human voice and creating digitized or synthesized speech. Researchers from several American universities collaboratively performed a scoping review of how SGD technology affects communication outcomes for people with developmental disabilities. Results indicated that these devices might effectively support word identification, syntax, literacy, and beginning communication skills of people with developmental disabilities (Chavers et al., 2022). This technology would help assess students who cannot respond verbally to test prompts.

Three of the many SGD products used in the Chavers et al. (2022) study are Easy Chat, NOVA Chat, and Vantage Lite with Unity (Table 3).

*Table 3: Speech-Generating Devices*

| Device | Description | Link |
|---|---|---|
| Easy Chat | A trademark of Zygo USA, Easy Chat is a digital recording device with a static picture overlay. Messages and vocabulary can be stored in multiple languages. The provided link provides a product-description flyer with pricing and contact information. | zygo-usa.com/usa/images/chatter/EasyTalk Description.pdf |
| NOVA Chat | Trademarked by Saltillo, NOVA Chat can be used with wired and wireless switches for scanning and includes a variety of voices in English and Spanish. Messages can also be sent to social media platforms. More information about the specifications of this product and how to purchase it is available through the link provided | store.prc-saltillo.com/novachat |
| Vantage Light | A Prentke Romich Company trademark. The company's latest SGD and other AAC technology can be purchased through the first link listed on the right. There is a tab leading to information about requesting Medicaid and other insurance funding is available. | prentrom.com/products |
| | A Vantage Light with Unity user manual with a detailed description, visuals, and company contact information can be accessed by selecting the second link listed on the right. | file.prentrom.com/104/Vantage-Lite-Unity-Manual.pdf |

## Conclusion

Multiple assessment formats and assistive technologies are becoming more available to schools. Some of the products described in this article can be found on Amazon or eBay. Easy access creates additional opportunities to make assessment more inclusive for students with developmental delays and complex communication needs. Assessing literacy skills is imperative to be able to provide an appropriate education based on students' identified needs and abilities. Using multiple presentation and response types and incorporating AAC technology allows students to show their literacy skills, so that instruction can be tailored to their ability and lead to positive outcomes and gains in literacy. Literacy is essential for academic achievement, community involvement, personal autonomy, and meaningful interactions with others (Caron et al., 2018). Without accurate assessment, children with physical and cognitive difficulties may experience delays in receiving early intervention or be denied sufficient instructional support and academic opportunities at school (Karlsson et al., 2022). As educators, we must assess our students with disabilities in ways that allow them to show us more than deficits. It is also important to document their abilities so they can continue to make gains that will lead to both independence and community connectedness, which the ability to read and write sustains.

Had I known about alternative assessments with multiple presentation and response types or had access to technology that helped with communication, I may have been able to gather much more information to guide instruction for my student who did not speak at school. With more data, I may have been able to either help her speak more or to be able to communicate in alternative ways that showed how smart she truly was! If I could go back in time and take these resources with me, I believe there would have been better outcomes. Since there is no technology available at this time to go back in time, I will have to move forward with new knowledge to create a better future for students with developmental disabilities and complex communication needs. Steps literacy teachers can take to improve assessment for students with developmental disabilities and complex communication needs are listed in Table 4.

*Table 4: Steps Literacy Teachers Can Take to Improve Assessment*

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|---|---|
| **Step 1** | Look for what your students **can** do and use that as valuable data. |
| **Step 2** | Find out what limitations keep your students from communicating all that they know. Overcome the limitations with alternative presentation and response formats. |
| **Step 3** | Explore what technology is already available at your school that would help your students better communicate their knowledge. Discuss any needs with your school administrators to see if funding is available to purchase additional technology. Also, check with vendors to see what other funding might be available through Medicare or private insurance. |
| **Step 4** | Collaborate with administrators, special educators, service providers, and caregivers to find alternative assessments that could be used or to brainstorm different ways to formatively assess children each day. |
| **Step 5** | Decide how you will equitably assess your students with developmental disabilities and complex communication needs. Implement your plan right away! |

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