

**Elementary Students with Autism Spectrum Disorder: Universal Design for Learning
(UDL) and Augmentative and Alternative Communication (AAC)**

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The Individuals with Disabilities Act (IDEA) is the modern foundation of special education in the United States. Under IDEA, all students are entitled to a free and appropriate education (FAPE), students with disabilities, and those that face barriers created by the one-size-fits-all curriculum are entitled to a nondiscriminatory evaluation, to determine the best course of action for the student. IDEA recognizes a wide range of conditions that may make accessing the curriculum and meeting educational standards more difficult. Conditions acknowledged by IDEA include but are not limited to speech and language impairments, visual and hearing impairments, learning disabilities and autism spectrum disorder.

Autism spectrum disorder (ASD) is a developmental condition categorized by restricted interests, repetitive behavior, sensory hypersensitivity, and social communication challenges. According to the Centers for Disease Control (CDC), children with autism spectrum disorder may also display delays in reaching conventional movement milestones, unusual sleeping and eating patterns, and delayed language skills (Centers for Disease Control and Prevention, 2022). Based on the wide variability of students with autism spectrum disorder (ASD), it is important all educators understand how to utilize the Universal Design for Learning (UDL) as well as augmentative and alternative communication (AAC) in order to support emergent communicators, thus also making the classroom more accessible for all students.

Important Definitions

Autism Spectrum Disorder (ASD) has a multitude of definitions. Medical diagnoses of ASD are made by psychologists or physicians based on The American Psychiatric Association's Diagnostic and Statistical Manual, Fifth Edition (DSM-5). "To meet diagnostic criteria for ASD according to DSM-5, a child must have persistent deficits in each of three areas of social

communication and interaction (Centers for Disease Control and Prevention, 2022)” These categories include “deficits in social-emotional reciprocity...deficits in nonverbal communicative behaviors used for social interaction, and deficits in developing, maintaining, and understanding relationships (Centers for Disease Control and Prevention, 2022).” Additionally, the DSM-5 criteria states that children must also experience two of the four categories of restricted behaviors, such as “repetitive motor movement... insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior... highly restricted, fixated interests that are abnormal in intensity or focus.... hyper- or hyporeactivity to sensory input or unusual interest in sensory aspects of the environment (Centers for Disease Control and Prevention, 2022).”

The educational criteria for ASD, however, is based on the Individuals with Disabilities Act, which defines autism spectrum disorder as:

a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age three, that adversely affects a child’s educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences. (*U.S Department of Education*)

IDEA's definition of ASD is used by school support teams to evaluate a student's eligibility for accommodation, curriculum and classroom modifications, and outside services administered by professionals such as speech and language pathologists, physical therapists, occupational therapists, and other school staff.

“The Autistic Self Advocacy Network is a 501(c)(3) nonprofit organization run by and for autistic people (Autistic Self Advocacy Network).” According to ASAN their mission is to make sure that autistic people have autonomy over their lives, have a say in legal policies that affect them. Additionally, ASANs goals include protecting civil and disability rights as well as celebrating the autistic community (Autistic Self Advocacy Network). When discussing autism spectrum disorder, it is important to acknowledge if the medical, educational, or ASAN definition is being referred to because this distinction plays a part in the context and specific circumstances of the autistic individual the conversation is referring to.

Individuals with ASD who experience challenges of meeting conventional communication expectations may be referred to as nonverbal or minimally verbal.

When a person with autism is nonspeaking, they do not communicate using spoken language, including vocalizations or sounds which have symbolic meaning, explains Meghan O’Neill, MD... But when someone is nonverbal, this does not mean that the individual cannot engage in communication, which broadly represents the exchange of messages or information between two people. (Northwestern Medicine, 2023)

Autism advocates are making a push to begin referring to children who are not developmentally able to communicate verbally yet as preverbal, in order to avoid the harmful notion that the individual is incapable of building the skills needed to communicate verbally. Despite being preverbal, children can communicate through body language and gestures. Additionally, under their IEP (Individual Education Program), individuals who are preverbal and are receiving special education services within their school are often provided with options for augmentative and alternative communication.

“Universal Design for Learning (UDL) is a framework to improve and optimize teaching and learning for all people based on scientific insights into how humans learn (CAST, 2018).”

The UDL framework is presented in an organizer developed by CAST, previously known as the Center for Applied Special Technology. CAST is a “nonprofit education research and development organization (CAST, 2018)” dedicated to making education inclusive and accessible to all students. CAST recognizes that when learning, the human brain utilizes three networks, the recognition, strategic, and effective networks.

Augmentative and alternative communication (AAC) is all forms of communication that are not verbal. According to the American Speech-Language-Hearing Association, “People of all ages can use AAC if they have trouble with speech or language skills. Augmentative means to add to someone’s speech. Alternative means to be used instead of speech (American Speech-Language-Hearing Association).” AAC is often broken down into two categories: technology options and non-technology options. Technology options include utilizing an app on a tablet, or “using a computer with a voice, sometimes called a speech-generating device (American Speech-Language-Hearing Association).” Alternatively, non-technology options include sign language, gestures, and spelling using writing or pointing (American Speech-Language-Hearing Association).

AAC options that utilize technology include “using an app on an iPad or tablet to communicate and using a computer with a “voice,” sometimes called a speech-generating device (American Speech-Language-Hearing Association).” Tablet options often have picture board touch screens in which children can select what they want to say, and the tablet will speak their selections aloud for them. Students who have physical disabilities that impair their motor

movement may also benefit from tablets that utilize eye-tracking to make the desired selections on their tablets.

Barriers In Curriculum

In American public schools, what students learn, as well as the acquisition and progression of skills expected of students are unrealistic for today's learners. Modern standards and curriculum for students do not consider the immense variability of learners. Because student expectations are insensitive to this variability, curriculum, and standards act as a substantial barrier for students with disabilities.

Students with autism spectrum disorder navigate the world uniquely. Children with ASD may face challenges communicating, have restricted or niche interests, experience sensory sensitivity, or may be partial to habitual or repetitive behaviors. Because students with ASD navigate the classroom differently, the inflexible curriculum and standards are what stand in the way of these students learning.

Classroom Community

Students with ASD may feel isolated from their peers and may struggle with group or teamwork. According to the DSM-5, children with ASD may struggle with traditional back-and-forth conversations, making eye contact, playing imaginatively, and may even lack interest in their peers (Centers for Disease Control and Prevention 2022). Because of this, early childhood students such as those in preschool and kindergarten may struggle to meet socio-emotional standards such as SEL8: The child will engage socially and build relationships with other children and adults or APL5: The child will cooperate with others in play and learning (Massachusetts Department of Elementary and Secondary Education, 2015). The barrier that

prevents students with ASD from feeling included in the classroom community, and participating within it is the expectation or standard that this is the age-appropriate behavior for all students.

Unengaging Lessons

The curriculum often prevents students with ASD from focusing on lessons and activities, and thus inhibits students from participating and performing to the best of their capabilities. Many children with autism spectrum disorder experience “highly restricted, fixated interests that are abnormal in intensity or focus (e.g., strong attachment to or preoccupation with unusual objects, excessively circumscribed or perseverative interests)” (Centers for Disease Control and Prevention 2022). As a result, lessons are often unappealing, unengaging, or seen as pointless. The curriculum is strict and inflexible; students must learn what is expected of them and often, there is little room for students to have autonomy, which acts as a barrier between students and accessing the core skills and knowledge they need to extract from the curriculum.

Rigid Expectations

The behavioral and routine expectations of a student's classroom may also act as a barrier to their learning. Students with ASD may experience:

insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior (e.g., extreme distress at small changes, difficulties with transitions, rigid thinking patterns, greeting rituals, need to take same route or eat same food every day). (Centers for Disease Control and Prevention 2022)

The classroom expectations of following a daily routine that differs from their own, or instances where routines are interrupted may dysregulate and upset students with ASD. This is an isolating and upsetting experience for students and may cause disruption to the entire school

day. It is unrealistic to expect all students to easily transition between activities, follow unfamiliar routines, and to adjust to changes in their habits and routines, and it is this expectation of students to be agreeable and flexible that creates a barrier between the students and their learning.

Also, in many classrooms, students are expected to sit quietly in their seats and speak only when appropriate. These behavioral expectations act as an additional barrier for students. According to the CDC and the DSM-5 students with autism spectrum disorder may experience repetitive motor movements, involuntary and repetitive verbal behaviors such as echolalia, and sensory hypersensitivity such as “adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement (Centers for Disease Control and Prevention 2022).” Many of the repetitive and involuntary behaviors exhibited by students with autism spectrum disorder are directly in violation of many of the behavioral expectations put on students in the classroom. Students are often not allowed to move around the classroom, are expected to only speak after raising their hand, and sensory hypersensitivity is often unconsidered during academic activities and school-wide practices. Because of this, events such as fire drills and assemblies may cause students with ASD to become dysregulated. More specifically, the behavioral, movement, and sensory expectations schools and standards have for children act as a barrier between them and accessing their education.

Universal Design for Learning

Based on the knowledge that learners use their brains affective, recognition and strategic networks while learning, CAST created the UDL framework which has 3 core principles. The three principles are multiple means of engagement, representation, and expression. These

sections are then broken down into guidelines, according to CAST “each of these guidelines have corresponding “checkpoints” that provide more detailed suggestions (CAST, 2018).”

Engagement

According to ASAN, “Routines are important for many autistic people. It can be hard for us to deal with surprises or unexpected changes (Autistic Self Advocacy Network).” In order to decrease the barrier of new routines, unexpected changes in the classroom, engagement issues, and rigid behavioral expectations, educators can utilize the multiple means of engagement category of the UDL frameworks. The multiple means of engagement section of UDL targets the affective network of a learner's brain as well as targets the “why” of learning.

UDL checkpoint 7.1: Optimize individual choice and autonomy suggests that “Offering learners choices can develop self-determination, pride in accomplishment, and increase the degree to which they feel connected to their learning (CAST, 2018).” By offering students with Autism Spectrum Disorder the option to make choices in their learning, such as the topic they research, the product they create such as a presentation, video, or paper, and how long they get to complete a long-term assignment, educators can better engage students in the curriculum and help them access important concepts. Moreover, by allowing students autonomy in their learning, educators are empowering their students to combat the unengaging lessons that hinder their learning. Additionally, while it is not an academic benefit, allowing students to make choices in the classroom helps them build confidence and self-advocacy skills.

UDL checkpoint 9.2: Facilitate personal coping skills and strategies states that “Reminders, models, checklists, and so forth can assist learners in choosing and trying an adaptive strategy for managing and directing their emotional responses to external events or

internal events... (CAST, 2018)” For students with ASD, educators may use checkpoint 9.2 to help students create coping skills for events that frequently upset students. By setting students up with the tools to identify, communicate, and respond to their emotions, educators are allowing their students to feel safe at school, within the classroom community and provides students with the tools to advocate for themselves and combat rigid curriculum, schoolwide or classroom expectations. Utilizing checkpoint 9.2 may look like allowing a student to take a break or visit a safe adult in the school building if they feel themselves getting upset, preparing students for events that may be overstimulating or scary such warning them prior to fire and safety drills, and providing alternatives supplies for hands on science experiments that may trigger sensory issues. Additionally, educators may create schedules, routine cards or other resources that model the days schedule to help students adjust to the classroom routine or to anticipate scheduled events that may disrupt the routine they are accustomed to.

Representation

The second section of the UDL framework suggests ways for educators to provide their students with multiple means of representation. This targets the recognition network of the brain as well as the “what” of learning. Under the representation section, checkpoint 1.1: Offer ways of customizing the display of information suggests that when providing students with resources teachers should allow options for all students to manipulate these resources in order to help them better understand. To do this, educators may allow options for students to enlarge text, change the volume or speed of videos or change the font of materials. Additionally, teachers may change the size or color of text to emphasize valuable information during slideshows or when writing on the board. According to the UDL framework, allowing for this customization “provides options

for increasing the perceptual clarity and salience of information for a wide range of learners and adjustments for preferences of others (CAST, 2018).”

UDL checkpoint 2.5: Illustrate through multiple media suggests that educators should provide students with options on how information is presented to them. One way a teacher can use multimedia is to “present key concepts in one form of symbolic representation (e.g., an expository text or a math equation) with an alternative form (CAST, 2018)” this could mean teaching students a dance that helps them remember a math equation, creating an acronym to help students remember a pattern, or watching a video that teaches students a song to help them remember state capitals. Providing information in multiple formats will help all students, not just those with ASD internalize and remember important concepts but it can also make aspects of the curriculum that were inaccessible easier for students to acquire and comprehend.

Action And Expression

The last section of UDL is the action and expression section, this section corresponds to the strategic network of the brain and targets the “how” of learning. For educators of pre-verbal students or emergent communicators with ASD, Action, and Expression checkpoints such as 4.1 and 4.2 help make activities more accessible.

Checkpoint 4.1 provides options to help educators “vary the methods for response and navigation.” Because of the wide variability of students with ASD, this section helps educators plan for all students, not just those who face barriers caused by curriculum access to their education. Checkpoint 4.1 suggest that:

To reduce barriers to learning that would be introduced by the motor demands of a task, provide alternative means for response, selection, and composition. In addition, learners

differ widely in their optimal means for navigating through information and activities. To provide equal opportunity for interaction with learning experiences, an instructor must ensure that there are multiple means for navigation and control is accessible. (CAST, 2018)

This could look like providing students with extra time to complete tests or assignments, alternatives handwriting or activities that require control of a computer mouse or providing “alternatives for physically interacting with materials by hand, voice, single switch, joystick, keyboard, or adapted keyboard (CAST, 2018).” Additionally, preverbal students with ASD may utilize ACC devices such as tablets or such devices, sign language or communication books with words and symbols students can point to as an alternative to verbally communicating with teachers or peers.

Finally, checkpoint 4.2: optimize access to tools and assistive technologies discusses how educators can create and model lessons and activities while supporting students and avoiding inadvertently creating additional barriers for students who use assistive technologies. The guideline states that “significant numbers of learners with disabilities have to use Assistive Technologies for navigation, interaction, and composition on a regular basis. It is critical that instructional technologies and curricula do not impose inadvertent barriers to the use of these assistive technologies (CAST, 2018)” for educators this may include ensuring AAC devices have the capability to pronounce vocab correctly, have options for students to select certain content specific topics they are learning about such as digraph sounds like –sh or ch-, that places in the school such as the gym, office, or playground are accessible on their device or in the communication book and that students that are learning sign language know how to sign

important content or vocab words so that they can communicate with parents, educators, or peers.

While universal design for learning guidelines were created to help educators best teach students who face barriers in the curriculum, it is important to recognize that all learners can benefit from their teachers utilizing UDL to make education more accessible. Additionally, it is vital to acknowledge that by using UDL to make learning accessible to those the curriculum is failing, it is making learning accessible to all students. Once teachers plan a lesson accessible to students whom the curriculum and standards are failing, teachers can add more practice or build up the lesson for students ready to be further challenged. (CAST, 2018)

Conclusion

Autism spectrum disorder (ASD) is a developmental condition categorized by restricted interests, repetitive behavior, sensory hypersensitivity, and social communication challenges. The way all students, as well as those with ASD learn and navigate their environments varies widely. Based on this variability, it is important all educators understand how to utilize Universal Design for Learning (UDL), as well as augmentative and alternative communication (AAC) in accordance with UDL in order to support students with ASD and emergent communicators, thus also making the classroom more accessible for all students.

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