Universal Design for Learning and Meaningful Access to the Curriculum

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Not long ago, the main educational issue for students with intellectual disabilities was access to the schoolhouse. Now these students are in school but many are not getting meaningful access to the grade-level curriculum. The Individuals with Disabilities Education Act (IDEA) requires that all students with disabilities have Individualized Education Programs (IEPs) designed to enable them to make progress in the general education curriculum. The No Child Left Behind Act (NCLB) states that all students must be educated in accordance with grade-level state content standards. If your child takes an alternate assessment on alternate academic achievement standards, it must be aligned to grade-level content standards, although it can be far less complex than the regular assessment.

The challenge I face as the mother of Stephen, who is a 9th grader with Down syndrome, is how to ensure that the right to meaningful access to the curriculum promised by these laws is a reality in my child's education. We all know that implementation is where everything falls apart. In preschool and kindergarten, it was not difficult to adapt the lessons for Stephen. However, as he got older and the content in the curriculum became more difficult, I had to press harder to get the goals, the instructional materials, the teaching methods and the assessments adapted for him. I quickly discovered that all the changes we made for him also benefited many other students in his classes, including students without IEPs. The teachers didn't have the time to customize materials and we didn't have convenient access to digital materials in class, so I was constantly searching for videos or alternate formats of texts (e.g., graphic novels that tell the same story in a comic strip format) as well as developing my own materials. I would read every novel the class was assigned and type up chapter summaries to support Stephen's comprehension.

A few years ago, when I learned about Universal Design for Learning (UDL), I realized that I had inadvertently been trying to implement UDL principles for one child when it needed to be implemented for all students. The Center for Applied Special Technology (CAST), the organization that first articulated the UDL principles, has published many articles and books, as well as developed digital instructional materials that can be used in the implementation of UDL. There are also other organizations that have developed technology and software that can be used in UDL implementation. Much of the information for this article came from CAST's website (www.cast.org) and from conversations with CAST's research and professional development teams.

CAST describes UDL as a framework for education that makes the curriculum accessible for all students, including students with intellectual disabilities, by providing cognitive as well as physical access to the information being taught and the assessments that measure what has been learned. It mirrors the universal design movement for architecture and products that universally designs sidewalks (by adding curb cuts), building entrances (by providing alternatives to steps) and television (by adding closed captioning) to accommodate a wide variety of users, whether or not they have disabilities. In education, students with disabilities and those without disabilities, especially English language learners, will benefit from UDL.

The term "Universal" in UDL does not imply that any one educational method is universal for all students. Instead, it emphasizes the need for multiple educational approaches that provide diverse learners with accessible learning opportunities. To apply UDL in educational settings, it is helpful to have a basic understanding of how the brain functions in learning situations.

CAST has identified three primary brain networks and the roles they play in learning (Rose & Meyer, 2002). Recognition networks help us to gather facts, identify, and categorize what we see, hear, and read. Identifying letters and recognizing the word it spells is an example of the recognition network. Strategic networks help us to plan for, organize and express our ideas. Writing an essay or solving a math problem are examples of strategic tasks. Finally, the affective network refers to students' level of motivation, sense of being challenged, excited, or interested in the learning experience. The sense of accomplishment a student gets after successfully completing a task is an example of the affective network.

All of this may sound very complex, but the essence is that all students, with or without disabilities, use different parts of the brain in different ways depending on the individual and on the learning task. As a result, curriculum should be designed from the beginning to address these differences by implementing the following three principles:

1) Multiple and flexible methods of presenting information must be provided so that students can acquire knowledge;

2) Multiple and flexible means of expression must be provided so that students can show what they have learned; and

3) Multiple and flexible options for engagement must be provided to maintain motivation for learning.

A common question is how does UDL relate to differentiated instruction? UDL supports differentiated instruction by providing the means to differentiate based on the three brain networks. It also helps teachers understand how to differentiate using a combination of traditional and digital materials. One distinction is that differentiated instruction is often used to address teaching methods but not goals, instructional materials and assessments. To fully implement UDL, all four aspects of curriculum design and delivery must be addressed. It is the district or the State Department of Education that determines the goals, materials and assessments for the curriculum. If these were selected or developed in accordance with the principles of UDL, teachers would be better able to properly differentiate instruction.

In the case of students with IEPs, additional individualization may still be necessary. However, the work for teachers, paraeducators and parents would be greatly reduced because the curriculum would already be designed to recognize individual differences and many accommodations would be built-in for all the students. This is a critically important aspect of UDL — it recognizes that ALL students learn differently. Therefore, students with disabilities do not have to feel that they are the only ones with learning differences.

The best way to explain how UDL works is to contrast the traditional and UDL approaches to the four components of curriculum: goals, instructional materials, teaching methods and assessments. The descriptions of these four components and some examples come from the CAST website, but many of the examples reflect strategies I have asked teachers to use in order to implement UDL principles in my son's classrooms.

Goals

Traditional instructional goals often specify the means by which they are to be achieved. For example: *students will read one on-line source and two books on these ten points about World War II and then will do an oral presentation to the class.* When stated this way, some students will not be able to achieve this goal.

A UDL goal would leave the means to achievement open-ended. For example: *students will learn key facts about WWII and will demonstrate their mastery of this information.* Writing the goal in this way, offers students the opportunity to demonstrate what they have learned. If a student has trouble decoding he or she may skip the print books and use on-line sources with a text to speech program so the student can hear the text read aloud. If

the student would have difficulties with an oral presentation because of a disability or even anxiety or shyness, he or she can use other ways to demonstrate mastery and share information with the class. A PowerPoint is one example of a way to present information even if the student is non-verbal. If the student is verbal, other non-graded opportunities can be used to help the student feel more comfortable about speaking in public.

The WWII example mentions "key facts." Although a single list of facts to be mastered was not incorporated in the goal, the district or state's curriculum guide should allow for differentiation by providing a list of core and essential facts that all students must know, a list of additional facts that some students should be expected to know and a list of facts that a few students are expected to learn for enrichment. Grading can be adjusted accordingly. The curriculum guide may also provide more modified lists of goals for students who are not working towards a regular diploma.

When discussing goals, it is important to distinguish between instructional goals and IEP goals. Instructional goals focus on grade-level content, whereas IEP goals focus on the skills needed to acquire the content knowledge. IEP goals, even very functional goals, can be met while working on instructional goals. For example, advancing the slides on the PowerPoint presentation can address an IEP goal for using technology to support communication.

Instructional Materials

Traditional materials are generally textbooks and other printed materials. A UDL approach would be to use digital versions of these materials as well videos, audiotapes, graphic novels and other media to meet the different learning needs in a class. One major advantage of digital text is that it is highly customizable. For example, font size and background color can be adjusted to improve contrast; portions can be copied into another document to create a simplified summary; a text to speech feature can be used to help with decoding and comprehension questions can be added—there are limitless possibilities. Many textbooks already come with electronic versions on CDs. In addition, software like Kurzweil 3000 can be used to scan the printed text and create digital versions of books and other instructional materials. There are also other very innovative uses of digital text, that provide information at different levels with built-in comprehension supports. Products based on CAST's work, as well as free tools for creating your own UDL based lessons and materials can be found at www.cast.org/products/index.html.

Unfortunately, until UDL is fully adopted and implemented the onus is on the parents to make requests (e.g., digital text) through the IEP process. An increased use of digital materials will require

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a paradigm shift in terms of how technology is used in most schools so that more technology is brought into the classroom. This is the perfect time for such a shift since most districts are developing technology initiatives to prepare students for employment in the 21st century. Parents and educators need to advocate for technology initiatives that consider the principles of UDL. Teachers, paraeducators and parents will have to spend less time adapting instructional materials when UDL is implemented.

Teaching Methods

A traditional approach to teaching often involves lecture-style presentation of information. Students are often divided into work groups based on their ability level (homogenous groupings).

A UDL approach would involve multiple means of presenting information to address the various ways students acquire knowledge and to keep the students engaged. For example, the lesson could include a short video clip and other visual representations of the concept. In addition, the class could view information from websites on a large computer screen and books on the topic (that are appropriate for students at different reading levels) can be in the classroom as resource materials. In addition, small work groups could mix students with different ability levels (heterogeneous grouping) to take advantage of complementary skills. A meaningful role for every child can always be developed. A child might be the media specialist for the group. He or she could go to the media center and ask for help to find the right materials. If a child is non-verbal, he or she could use augmentative communication or bring a request written by the group. The school's media specialist could then show the child how to find materials on a particular topic. This role offers a way to work on IEP goals about communication and independence and how to use resources like the library. The curriculum guide or staff development trainings could offer suggestions to teachers on how to maximize the participation of all students in the class activities.

Assessments

Traditional assessments often come from chapter tests provided by the textbook company. One problem with chapter tests is that they may not be fully aligned to the instructional goals, thereby failing to accurately assess the curriculum targets. A second problem is that the design may present a barrier for some students to demonstrate their knowledge. For example, word choices in the development of a test could help or hinder a student from answering the question. Consider the phrasing of the following question: "Who assassinated Abraham Lincoln?" The term assassination may be unfamiliar to some students. Unless assassination is a vocabulary word that the student is expected to know, simpler language such as "Who killed Abraham Lincoln?" may promote better demonstration of the knowledge being tested.

The UDL approach to testing ensures that the assessments are aligned to the goals and provide mechanisms for eliminating barriers. Also, assessment design should consider alternate means of delivery (e.g., oral tests or an un-timed session),

modification of assessment content (e.g., less complex questions on less material) and/or different question format (e.g., matching columns, fill-in-blank with or without word bank).

To improve assessment options available to students, districts should request that textbook companies publish a few alternate versions of the chapter tests or the districts should develop these alternate versions and provide them to the teachers.

Another option is to use online assessments which allows for customization. Online assessments offer numerous advantages. For example, if the student has trouble reading, he or she could listen to the questions and answer choices using a text to speech program (as long as decoding is not being tested) or could increase the font or limit the number of questions that appear at one time. The student could also click on definitions of words to ensure comprehension of the questions and answer choices (as long as they are not vocabulary words that are being tested). In the example above, the student could click on "assassinate" and find out it means "to kill." The definition can also be given in another language for English language learners. This approach helps the student to understand the question and reinforces a word that was used in class but is not being tested.

The universal design of goals, instructional materials, teaching methods and assessments has tremendous potential to improve the instruction and assessment of all children, but it is especially important for students with disabilities. It provides a framework that helps parents and educators understand how these students, including students with intellectual disabilities, can meaningfully participate in the grade level curriculum. Turning this vision into a reality is one of the goals in the legislative agenda developed by the National Down Syndrome Society (NDSS) National Governmental Affairs Committee. (NDSS National Legislative and Policy Priorities, July 2006)

At the federal level NDSS is spearheading the National UDL Taskforce, which includes TASH and many other national disability and general education organizations. This taskforce is advocating for UDL language in the NCLB reauthorization bill and is working with the U.S. Department of Education to increase the dissemination of information about UDL. All the organizations in the coalition, which represent stakeholders such as parents, teachers, related service providers, principals, and school boards are also disseminating this information to their members. In addition, the taskforce recommended UDL language for the reauthorization of the Higher Education Act. This language would address the need for teaching colleges to prepare special and general educators to use UDL teaching methods in K–12 and would also address the need for higher education faculty to use UDL in their courses. The website for the taskforce, www.udl4allstudents.com, contains a full list of the members as well as UDL resources and recommended legislative language.

If you agree that the implementation of UDL is necessary to provide meaningful access to the curriculum to ALL students,

you can help the National UDL Taskforce advocate by sharing your experiences and the need for these changes with your local and State school boards, your State Department of Education and your legislators on the State and Federal levels. For more information about the Center for Applied Special Technology (CAST), visit www.cast.org or the National UDL Task Force at www.udl4allstudents.org.

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Lessons that involve highly complex text require a great deal of scaffolding. Many of the suggestions we make in the Meeting Students' Needs column of the NYS lessons are scaffolds—temporary instructional supports designed to help students successfully read texts that are supposedly too hard for them. **Many scaffolds are excellent for all types of learners—English Language Learners (ELLs), students with special needs and/or students who are just generally challenged by reading.**

Scaffolding *becomes* differentiation *when students access or have access to scaffolding only when needed. Scaffolds that are provided to the whole class might be appropriate and necessary, but whole class scaffolds are not differentiation.*

FRONT-END SCAFFOLDING	**Front-end scaffolding** is defined as the actions teachers take to prepare students to better understand how to access complex text before they read it. Traditionally, front-end scaffolding has included information to build greater context for the text, front-loading vocabulary, summarizing the text, and/or making predictions about what is to be read. Close analytical reading requires that teachers greatly reduce the amount of front-end scaffolding to offer students the opportunity to read independently and create meaning and questions first. It also offers students the opportunity to own their own learning and build stamina.
	Examples of front-end scaffolding that maintain the integrity of close reading lessons include: • Using learning targets to help students understand the purpose for the reading • Providing visual cues to help students understand targets • Identifying, bolding, and writing in the margins to define words that cannot be understood through the context of the text • Chunking long readings into short passages, (literally distributing sections on index cards, for example), so that students see only the section they need to tackle • Reading the passage aloud before students read independently • Providing an audio or video recording of a teacher read-aloud that students can access when needed (such as SchoolTube, podcasts, ezPDF, or GoodReader) • Supplying a reading calendar at the beginning of longer-term reading assignments, so that teachers in support roles (special needs, ELL, AIS) and families can plan for pacing • Prehighlighting text for some learners so that when they reread independently, they can focus on the essential information • Eliminating the need for students to copy information—and if something is needed (such as a definition of vocabulary), providing it on the handout or other student materials

BACK-END SCAFFOLDING	**Back-end scaffolding**, on the other hand, is defined as what teachers plan to do after students read complex text to help deepen understanding of the text. When teachers provide back-end scaffolds, they follow the "Release-Catch-Release model," allowing students to grapple with hard text FIRST, and then helping students as needed.

	Examples of back-end scaffolds include, but are not limited to:
	• Providing "hint cards" that help students get "unstuck" so they can get the gist—these might be placed on the chalkboard tray, for example, and students would take them only if they are super-stuck
	• Encouraging/enabling students to annotate the text, or—if they can't write directly on the text—providing sticky notes or placing texts inside plastic sleeves (GoodReader is an app that allows students to mark up text on an Ipad. Adobe Reader works on a wide variety of electronic platforms)
	• Supplying sentence starters so all students can participate in focused discussion
	• Placing students in heterogeneous groups to discuss the text and answer text-dependent questions
	• Providing task cards and anchor charts so that expectations are consistently available
	• Highlighting key words in task directions
	• Simplifying task directions and/or create checklists from them so that students can self-monitor their progress
	• Placing students in homogeneous groups and providing more specific, direct support to the students who need it most
	• If special education teachers, teachers of ELLs, teaching assistants, etc. are pushed in to the ELA block, teaching in "stations" so that students work in smaller groups
	• Designing question sets that build in complexity and offer students multiple opportunities to explore the answers:
	  * Students discuss the answer with peers, then write answers independently and defend answers to the whole class.
	  * Provide time for students to draft write responses before asking for oral response.
	• Identifying and defining vocabulary that students struggled with
	• Using CoBuild (plain language) dictionaries
	• Providing partially completed or more structured graphic organizers to the students who need them
	• Providing sentence or paragraph frames so students can write about what they read
	• **AFTER students have given it a shot:**
	  * Examine a model and have students compare their work to the model and then revise.
	  * Provide a teacher think-aloud about how he/she came to conclusions and have students revise based on this additional analysis.
	  * Review text together as a class (smartboard or document camera) and highlight the evidence.

Checking for Understanding: Key Assessment for Learning Techniques

When we check all students' levels of understanding throughout each lesson, it sets the tone that everyone's thinking is important and necessary, and we forward the learning and engagement of all. Some techniques are too time-consuming to use as quick pulse checks, but using these key techniques together in all lessons allows us to track learning and adapt instruction appropriately on the spot.

In All Lessons, Teachers:

Ground the lesson in the learning target. This means they:
- Post the target in a visible, consistent location
- Discuss the target at the beginning of class with students, having students put the target into their own words, explain its meaning, and explain what meeting the target might look like
- Reference the target throughout the lesson
- Return explicitly to the target during the debrief, checking for student progress

Use Cold Call. This means they:
- Name the question before identifying students to answer it
- Call on students regardless of whether they have hands raised, using a variety of techniques such as random calls or tracking charts to ensure all students contribute, name sticks or name cards
- Scaffold the questions from simple to increasingly complex, probing for deeper explanations
- Connect thinking threads by returning to previous comments and connecting them to current ones. In this way, listening to peers is valued, and even after a student's been called on, he or she is part of the continued conversation and class thinking

Use No Opt Out. This means they:
- Require all students to correctly answer questions posed to them
- Always follow incorrect or partial answers from students by giving the correct answer themselves, cold calling other students, taking a correct answer from students with hands raised, cold calling other students until the right answer is given, and then returning to any student who gave an incorrect or partial answer for complete and correct responses

Use guided practice before releasing students to independent application. This means they:
- Ask students to quickly try the task at hand in pairs or in a low-stakes environment
- Strategically circulate, monitoring students' readiness for the task and noting students who may need re-teaching or would benefit from an extension or more challenging independent application
- Use an appropriate quick-check strategy (see below in Tools/Protocols section) to determine differentiation or effective support during independent application time

End with an effective debrief. This means they:
- Return explicitly to the learning targets (both academic and character/habits of work)
- Elicit student reflection towards the learning target(s), probing for students to provide evidence for their own and/or class progress
- Celebrate or have students celebrate individual, small group or whole class successes
- Identify or have students identify goals for improvement around the target(s)

Quick‐Check Tools and Protocols

The following tools and protocols promote engagement by checking for all students' understanding and by reflecting on and emphasizing effective work habits.

Go-around
When a one- or two-word answer can show understanding, self- or group assessment, or readiness for a task, teachers ask students to respond to a standard prompt one at a time, in rapid succession around the room.

Whiteboards
Students have small white boards at their desks or tables and write their ideas/thinking/ answers down and hold up their boards for teacher and/or peer scanning.

Hot Seat
The teacher places key reflection or probing questions on random seats throughout the room. When prompted, students check their seats and answer the questions. Students who do not have a hot seat question are asked to agree or disagree with the response and explain their thinking.

Fist-to-Five or Thumb-Ometer
To show degree of agreement, readiness for tasks, or comfort with a learning target/concept, students can quickly show their thinking by putting their thumbs up, to the side or down; or by holding up (or placing a hand near the opposite shoulder) a fist for 0/Disagree or 1-5 fingers for higher levels of confidence or agreement.

Glass, Bugs, Mud
After students try a task or review a learning target or assignment, they identify their understanding or readiness for application using the windshield metaphor for clear vision. Glass: totally clear; bugs: a little fuzzy; mud: I can barely see.

Red Light, Green Light
Students have red, yellow, and green objects accessible (e.g. popsicle sticks, poker chips, cards), and when prompted to reflect on a learning target or readiness for a task, they place the color on their desk that describes their comfort level or readiness (red: stuck or not ready; yellow: need support soon; green: ready to start). Teachers target their support for the reds first, then move to yellows and greens. Students change their colors as needed to describe their status.

Table Tags
Place paper signs/table tents in three areas with colors, symbols or descriptors that indicate possible student levels of understanding or readiness for a task or target. Students sit in the area that best describes them, moving to a new area when relevant.

Sticky Bars
Create a chart that describes levels of understanding, progress or mastery. Have students write their names or use an identifying symbol on a sticky note and place their notes on the appropriate place on the chart.

Learning Line-ups
Identify one end of the room with a descriptor such as "Novice" or "Beginning" and the other end as "Expert" or "Exemplary". Students place themselves on this continuum based on where they are with a task or learning target. Invite them to explain their thinking to the whole class or the people near them.

Human Bar Graph
Identify a range of levels of understanding or mastery (e.g. beginning/developing/ accomplished or Confused/I'm okay /I am rocking!) as labels for 3-4 adjacent lines. Students then form a human bar graph by standing in the line that best represents their current level of understanding.

Admit and Exit Tickets
Any relevant questions, prompts, or graphic displays of student thinking can be captured on a small sheet of paper and scanned by the teacher or other students to determine a student's readiness for the next step or assess learning from a lesson. Teachers may use admit slips as a "ticket to enter" a discussion, protocol or activity. These may also be used as "tickets to leave."

Presentation Quizzes
Whenever peers present, other students may think they are not responsible for the information. Pair student presentations and sharing with short quizzes at the end of class.

Catch and Release
When students are working on their own, they often need clarification or pointers so that they do not struggle for too long of a period or lose focus. A useful ratio of work time to checks for understanding or clarifying information is seven minutes of work time (release), followed by two minutes of teacher- directed clarifications or use of one of the quick-check strategies (catch).

Four Corners
"Four Corners" is an interactive way for students to demonstrate their thinking, or solidify new information, about a topic.
Procedure:
1. Determine a question for students to consider
2. Create 4 choice sheets, each with a different word or phrase that responds to the question
3. Post each of the 4 choice sheets in a different corner (or area) of the room
4. Pose the question to students, and direct them to respond, or 'vote,' by moving to one of the four corners
5. Once students are in corners, ask them to talk with other students in their corner about why they chose that response

Milling to Music
"Milling to Music" is a Checking for Understanding Technique where students can share their thinking, class work, or homework in an interactive way with their peers. This activity is similar to Musical Chairs, except there are no chairs and no one gets 'tagged-out.' While the music is playing, students should dance around to move throughout the room; when the music stops, each student will share his/her thinking or work with the student closest to her/him. Have students do this twice, so they have the opportunity to share with two peers.