

Universal Design for Learning

Meeting the Needs of All Students



I recently saw an advertisement that said, “How can you hold thirty hands when you only have two?” It reminded me of Lev Vygotsky’s theory of the Zone of Proximal Development, which I learned about while reading his book *Thought and Language* in my teacher education classes. I connected immediately with Vygotsky’s idea that each individual has his or her own unique learning zone and how this theory seeks to teach students in their own individual zones. For learning to take place, the material must be challenging enough to engage students’ interest, but not so challenging that they become frustrated and give up. My challenge was to figure out how to make this teaching method a reality in my classroom of 21 diverse first graders with many different learning styles. How can I figure out how to make the curriculum accessible to each student? How can I deliver on Vygotsky’s 21 individual zones of proximal development? The answer for me is Universal Design for Learning (UDL).

Fundamentals of UDL

I learned the fundamentals of UDL at a professional development institute offered by the Center for Applied Special Technology (CAST), a not-for-profit educational research organization located in Wakefield, Massachusetts. (*Editor’s note:* Find this and other URLs under Resources on p. 29.) CAST developed UDL as an approach to teaching, learning, and assessment. UDL focuses educators on developing flexible curricula that provide students with multiple ways of accessing content, multiple means

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Audience: Teachers, teacher educators

Grade Level: K–2 (Ages 5–7)

Technology: eReader

Standards: NETS•S 3; NETS•T II (<http://www.iste.org/standards>)

for expressing what they learn, and multiple pathways for engaging their interest and motivation. This, in turn, allows teachers a multidimensional view of their students as learners, and offers teachers unique insights into assessing student's knowledge, interest, and understanding. Although UDL is by no means a simple way of thinking about and planning curriculum, I try to begin each planning session with a few simple questions to guide my planning:

- What is the basic idea that the students need to learn?
- What are different ways to learn this idea: demonstration? games? shared experience?
- If there is reading involved, do they have to read it by themselves, or can they use other tools and strategies to get the information?

I think about assessment in the same way:

- Is a test the best way to find out whether students learned the information?
- In what different ways can students show their understanding? Which will be meaningful for them?

CAST's dream of UDL is for each student to have access to the curriculum in a way that promotes the most learning for that individual. Most educators wish to teach every student in the way that allows for the best access to learning. I am always looking for practical ways to make this happen in my classroom. CAST invited me to share a few successes I have had in the hopes that I can help inspire ideas that will work in other classrooms.

My First-Grade Classroom

The design of a first-grade classroom must take into account the most pressing challenges facing its students. I wanted to use the lens of UDL to address skill imbalance and attention span.

My first graders have plenty of ability to comprehend text and ideas, but not all of them have the skills to decode at as high a level as they can comprehend. I have found that there is a dangerous tendency, especially when teaching struggling readers, to focus only on decoding skills and conduct most instruction using simple text. Selecting learning materials solely on the basis of students' decoding ability rather than their ability to comprehend the content can create an imbalance in students' reading skills as they get older.

Another thing I needed to keep in mind was my first graders' limited attention spans. They need engaging and interesting content provided in a flexible curriculum. They need the chance to ask questions, notice, and observe in a hands-on environment. If they lack these essentials, their motivation to learn often drops off.

With these challenges in mind, I changed my instructional practice to reflect UDL principles, and I integrated technology into our guided reading time. Combining the principles of UDL and computer technology with my assessment of each student yielded some results of which I think Vygotsky would be proud.

UDL in Practice

Part of our first-grade curriculum is an exploration of the needs of living things. We begin this study by

learning about the needs of seeds and plants. Some wonderful children's fiction and nonfiction literature is available on this subject. It occurred to me that I ought to try to integrate the reading of science material into our literacy teaching. Typically, much of our science reading takes place during science time and comes in the form of read-alouds. I have shied away from reading science content material during guided reading time in the past because it is often very difficult for many of my students to decode. I thought it would be interesting to approach this from a UDL perspective: figuring out how to break the decoding barrier and provide the students with appropriate supports to focus on the content.

I chose four books at different reading levels: *I'm a Seed* by Jean Marzollo, *Growing Vegetable Soup* by Lois Ehlert, *Diary of a Sunflower* by Carol Pugliano, and *How a Seed Grows* by Helene J. Jordan. I placed the books at four stations around the classroom. I told the students they would be reading one of these books at guided reading time the next day, but I wanted their help in deciding who would read which book. Students had about five minutes at each station to look through each book. Their job was to think about how well they could read it by themselves, whether it interested them, and if they would learn something new from the book. Students then ranked the books from their first through fourth choice. I told them I would look at their choices, try to give all students their first or second choice, and assign books to students for the following day. My task seemed clear: In assigning the students to the

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different books, I needed to figure out how to let each access his or her first choice, whether it was a book he or she could independently decode.

Some of the division was simple; I assigned several students to their first choice knowing that they would be able to read it independently. Other students I put into pairs. I knew that their reading skills would complement each other and they would be able to decode and comprehend the book well together. For those students, I had allowed access to the content in their zone of proximal development by selecting one child who would scaffold the other's reading, a key component of Vygotsky's zone of proximal development theory.

The next steps required some ingenuity. How could I provide scaffolds for students to read the books? I recorded each book on a cassette tape, reading slowly and encouraging the readers to follow along with their fingers. I also stopped every few pages with questions for them to think about or important points for them to notice.

The books chosen by a few of my students on individual education plans (IEPs) required the most preparation. One student has a documented print-based disability, and a few students needed more intense scaffolds than those provided in the audiotaped book. Using a scanner,

I created computer image files of the book's pictures. Next, I typed the text for each page into a software program for creating Web pages. I chose to use this type of program because it would allow me to "link" the pages together and students could navigate forward and backward through this program, just like a book. My school owns copies of Dreamweaver, so I used this software, although many others are available. Into each page, I imported the picture that I'd scanned previously, creating a "page" that was very similar to the corresponding page in the book. I then linked each page together. (This "digitizing" of copyrighted material that the school owns a legal copy of is permissible when used for instruction of students with special needs as long as the digitized copy identifies the copyright owner, includes the original date of publication, and contains a notice that further reproduction may infringe on the copyright owner's rights.) I then opened this new document using the CAST eReader, a software program that reads text out loud while highlighting the word or phrase that is being read. The end result was a virtual book for students to use on the computer. With this digitized book and eReader, students are able to read independently, either by highlighting unfamiliar words and hav-

ing eReader read the words to them, or by having the entire page read to them and then trying it on their own.

The next day was the real test. Would multiple means of engagement make the difference? Would all of my students be able to answer the science questions posed to them? Would decoding problems cease to be a barrier to understanding the content? Had I truly "universally designed" the Guided Reading time?

At the beginning of our Guided Reading time, I posed two questions:

- What do seeds need so they can grow?
- What do seeds grow into?

Each question was written in a different color and posted in three spaces around the room. I gave students sticky notes to mark the places where they found answers to those questions in their book. I worked with the students reading digitized books to capture their answers. The sticky notes matched the color of the question, so an answer to a purple question was marked with a purple note, and green question with a green note. I also asked the students to write their answers on the sticky notes when they had finished reading and to stick the notes on chart paper under the appropriate question. I encouraged the students to listen to and read their assigned book as many times as they wished.

I was amazed at the way the guided reading time turned out. All of my students were focused, engaged, and curious. It was a bit louder than I had anticipated, but all of the noise was purposeful. Students were discussing the questions with their partners, pointing out things they noticed, and asking each other questions. During our wrap-up time, when we shared what we learned from the books, students saw what their classmates were reading and learning. The students that I assigned to use the digitized

book with eReader were able to find examples to support each of the questions and to participate in our discussion. They were using eReader to read aloud the words they did not know and then to read on their own. Many asked if they could read the other books the next day. Because I had provided multiple scaffolds for the books, students were able to read the other books when they wanted, either independently, with a partner, on audiotape, or on the computer.

I have only one computer in my classroom, so I need to be strategic about allowing all students access to it. I solve this by assigning the computer to certain students when there are specific projects and work on which the computer can support them. The different software is available to everyone during our “free times” and “workshop times.” I am very careful to make sure all students get turns using the computer and the various software tools in the beginning of the year and throughout the year when we use new software. This way students know that they will get chances to use the computer at other times during the day when they are not directed to use the computer during a particular time.

My reflection on the success of the Guided Reading time led me to a few conclusions. I was providing practice in both comprehension and decoding and integrating other learning content into a reading instruction time. Students were able to see that learning happens across all areas—it is not compartmentalized so you only learn about science during science time. Students also seemed to be inspired by this investigation into the texts—they were continuing to find answers to the questions in other books about seeds at other times during the next few weeks. At the end of the unit, and even well into a different study, my first graders still retained the knowledge they had gained.

The preparation was time consuming—3–5 hours. However, the time spent was well worth it, and I have everything ready for future use—as well as for use by other teachers. There are many ways to reduce the time, such as inviting families or older students to read the books on tape or to scan in pictures and type in text. We teachers tend to be very creative in finding ways to get all of our tasks done!

Another benefit is that I am able to allow all students access to different types of support. When they get the chance to experience each of the tools, they begin to learn what works for them and what does not. Students want to be independent learners. Generally, if they do not need the support of an audiotape, they don't use it that often. Students who are consistently drawn to a particular tool are usually those who need it.

How UDL Addressed the Issues

The more ways I find to use UDL in the classroom, the more often I see my students' individual needs being addressed. Using a UDL model to plan instruction helps me address many of the issues present in a first-grade classroom.

During guided reading, I addressed skill imbalance by supporting my students in accessing content they could comprehend but not yet decode. This allowed them to develop their comprehension skills using engaging and meaningful content. The multilevel structure of the activity (allowing the students to choose from four books with different levels of scaffolding) provided them with the flexibility they needed to read the book they chose, to answer questions that would help them in their future science work, and to be invested in what they were doing because they were part of the planning process.

When reading books they chose and knowing that they had ways to

get help on words they didn't know, my students, attention spans improved greatly. My first graders also love post-it notes, so having the opportunity to use the notes to mark parts of the book made them want to find answers to the guiding questions.

You can find practical tips on integrating UDL into your teaching and assessment in David H. Rose & Anne Meyer's book *Teaching Every Student in the Digital Age: Universal Design for Learning*, published in 2002 by the Association for Supervision and Curriculum Development (ASCD), and on the Teaching Every Student Web site.

As a first-grade teacher, I am blessed with brilliant students who have an insatiable and a voracious thirst for learning. Many of my students pick up books that I consider too hard for them; they do this because they really want to read them. They know the work is hard, but they don't see it as a deterrent to their learning. Before my experiences with UDL and different software tools, I was unsure how to let them proceed. Now, with UDL as a viable tool, who am I to stand in their way?

Resources

CAST: <http://www.cast.org>

Dreamweaver: <http://www.macromedia.com/software/dreamweaver/>

eReader: <http://www.cast.org/ereader>

Teaching Every Student: <http://www.cast.org/teachingeverystudent/>



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creating critical thinkers, building peaceful classrooms, and integrating all learning styles into her teaching. Kirsten has presented workshops on conflict resolution and educational technologies.



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