Chapter 8

Access through Universal Design and Technology

Stacy Hammer*

My first goal as a school librarian is to provide access for my patrons. By providing access to books, online reference materials, and tools through our makerspace, I give students opportunities for learning in many different ways through library programming. The availability of these materials alone meets the needs of some learners, but not all. What of the learners who need additional support? The reluctant learners? The learners who struggle with reading? The learners who are learning English while at school and speak another language at home? Additional support is needed by some learners in the library to make access for all possible.

By incorporating technology into lessons, students at a variety of ability levels can learn and show what they have been taught. The use of pictures, video, and audio, thanks to technology, can bring learning alive to students who do not learn well from traditional lecture and text reading. Beyond that, the inclusion of such technology opportunities is motivating for all learners and encourages creativity, collaboration, and digital competence. The library is not a place just for high-level readers, but a space where all learners of all abilities can find common ground.

The elementary school library where I work has approximately 650 students. It is nestled in a community halfway between our nation's capital and the Virginia state capital, Richmond. In this public school, there are a variety of learning needs, including but not limited to students who speak English as a second language, students with individualized education plans, and students with special needs. All students in the school attend a forty-five-minute library class once a week. Through this library class, students receive instruction in accordance with a library curriculum, which includes, but is not limited to, literature, research, digital citizenship, using library resources, makerspace, and coding. Students also use this forty-five-minute block of time to choose and check out library books. I want to create opportunities for meaningful instruction that will help my students grow as learners once they leave library class. I have found the best way to access all learners is by incorporating opportunities to learn and show learning through technology platforms.

Using technology in this way draws upon the theory of universal design. Universal design is planning spaces or products in a way that they are functional for as many people as possible.[1] The concept draws upon the design of making spaces usable for all, without marginalizing any group. For instance, wheelchair ramps at the mall are helpful for those in a wheelchair, but they are also useful to families pushing strollers and people who would rather walk the ramp than the stairs. In terms of libraries, it's making the physical space and programming accessible to all learners no matter their learning style, level, or ability. In terms of teaching and learning, having the opportunity to show learning via a platform that is heavy in pictures, videos, and audio does not take any learning away from the learners who can read and write at or above grade level. It does

* **Stacy Hammer** is a second-year elementary school librarian at Battlefield Elementary School in Spotsylvania, Virginia. A Michigan native, she is a graduate of Wayne State University and the University of Michigan. Before earning a School Librarianship Endorsement from Longwood University, she taught middle school English. She loves children's books, kayaking, her two dogs, and Vernors ginger ale. She lives in Fredericksburg, Virginia, with her husband and their two children.

bring the lesson or assessment to a place where all learners can succeed.

Universal Design for Learning (UDL) comes from Anne Meyer, David H. Rose, and David Gordon, authors of the book *Universal Design for Learning.* The framework they developed has three guiding principles—engagement, representation, and action and expression.[2] Incorporating lessons that can engage learners on many levels, represent content in many ways, and allow choice for students to demonstrate their learning using tools that align with their learning needs and styles in technology lessons increases the level of learning for all library patrons and promotes a more inclusive setting that has more flexibility for all users.[3]

Visual

In the context of teaching and learning, the concept of UDL begins during instruction. Our library is equipped with an interactive panel television. Working through a computer, the flat panel screen allows opportunities for students to work interactively through lessons and collaboratively after lessons have ended. The use of images and videos on the screen is a motivation; the interactive option is extremely encouraging as students may move and manipulate words and images to show their learning. By using not just words, but words and pictures during interactive activities, more students are able to access the learning. Kindergarten students who do not speak English at home are thrilled to show their understanding of the events in a story by sorting the pictures of the story events in order. The ability to use images, or images and words, makes the interactive board a tool that is universally beneficial to all students.

The library also has an interactive table available for students and teachers. Just as the interactive panel television encourages all learners by allowing them to manipulate pictures and words, the interactive table works in the same way. The flat panel television is used for whole-group instruction, small-group instruction, and small-group practice. The interactive table is perfect for small-group instruction and small-group practice. Again, the use of pictures and words in any manipulation makes the use of this design meaningful to more students. As students use pictures that are labeled with words in an interactive way, they are also building upon language skills and becoming stronger readers.

By using the platform of Google for Education, or GApps, students may complete formative and summative assignments by using little to no written text. This does not mean those who can write well do not get the opportunity to write; rather, it provides students more options to choose a format to meet their strengths.

Using Google Slides as an option for students to show their learning is as fantastic as it is versatile. By inserting a variety of pictures, students may answer a question or provide other evidence of learning. Students may search for pictures via a Google search, or they may take pictures themselves using the computer's camera function. Students can also create pictures themselves using Google's Draw function. By offering a variety of options and choices between images and words, students are able to select a combination that best meets their needs. An example of using Google Slides in the library plays upon the popular "selfie." Most students know what a selfie is, and many librarians have heard of a "shelfie," in which a person poses with a book. Fifth graders were assigned a slide number on a shared Google Slide, which had a book title on each slide. Students practiced their skills at using our online catalog. They found the book on the shelf using the call number and then took a "shelfie" of themselves with the book using the camera function on the Chromebook, which inserted the picture on the slide. After modeling, all fifth graders were able to navigate Google Slides and were able to show their ability to find a book using our online catalog. On the assessment end, it was a quick way to visually see which students can complete the task and which students need more instruction and practice with the skill.

Flipgrid is an online platform that educators can use to provide students an opportunity to show their answers through video. Teachers and librarians pose questions on Flipgrid and provide the link to students, and then their students record a short video. It is incredibly easy to use and encourages students to show their learning verbally, rather than through writing. This is a great way to encourage students to be creative in the way they film and to accommodate their needs as learners and sharers. Flipgrid is an excellent technology option to meet all learners where they are. On the assessment side, teachers may watch each video, leave comments, and use the grading rubric included on the video if they want to.

Audio

To make online text available to all students, our school district has acquired a program to read text aloud—Snap and Read. The program, used via a Chrome extension, can be opened by students, and it will remain open along the side of the window. When students do not know how to pronounce a word or would like to hear the text, they may highlight the desired text, and the program will read it aloud. This can be any text, anywhere. It will read websites, e-books, presentations, and documents. Once students are taught how to use the Chrome extension, using the

read-aloud function is user-friendly. English language learners or anyone with an interest in other languages can change the settings in the program, so English text can be read aloud in a variety of languages. Spanish, French, Arabic, and more are available. Beyond the read-aloud function, Snap and Read also has a platform to write notes and outlines during researching and has capabilities to create citations. As a tool to universally assist teachers and students in teaching and learning, Snap and Read is designed in a way that all students can benefit from some of the tools, and those who benefit by hearing the text can listen to anything that is in electronic form.

For some students, the act of typing is difficult or downright impossible. To meet the needs of students who struggle with typing or physically cannot type, the use of the Google Voice typing tool is an option. As our library is equipped with a class set of Chromebooks, all students may submit work electronically. By using the Voice typing tool, students may speak the words they want written and watch them appear on the document. By using this tool, students of various ages and abilities can submit typed assignments to show their learning. Their work all looks the same, and some of the issues of spelling, grammar, and illegible handwriting are taken out of the assessment equation.

Interactive Books

Some resources seem to cross the line between a visual tool and an audio tool and between a teaching tool and a learning tool. The Lightbox by Follett is one such resource. Part e-book, part interactive learning center, the Lightbox combines reading with a read-aloud option, pictures, videos, maps, and links to outside websites on topics. Each book must be purchased via Follett, and the interactive book is available with unlimited copies for users, meaning all students in a class could have the e-book open at the same time. In the library, this resource can be used for research and more. When a librarian is collaborating with a classroom teacher, this resource is an option for the whole group, a small group, or individual instruction. As it can be read, listened to, and watched, it meets learners' strengths in a variety of ways. When paired with a tool like Snap and Read, it also becomes more accessible to more students, including English language learners.

Conclusion

With the variety of resources that are available for students, teachers, and librarians, some may say we are lucky. However, these resources are meaningless if students cannot access them or gain learning through them. Student access is the driving force that I consider often when planning lessons and reflecting on benefit and accessibility after lessons. As a librarian, it is easy for me to focus on physical accessibility. Can the students find and get the books they need? Is the makerspace set up in a way that all students have opportunities? Is there a way to change the layout to make more students want to enter our space? The list of questions to ponder is endless, and these all come back to universal design as well. As librarians we should consider taking the concept of universal design a step further into Universal Design for Learning—to not only make technology physically available for students, but also teach students how to use tools that will make the technology meaningful for teaching and learning as well.

Notes

1. "What Is Universal Design: Definition and Overview," Centre for Excellence in Universal Design, National Disability Authority, Dublin, Ireland, 2012, http://universaldesign.ie/What-is-Universal-Design/Definition-and-Overview/.
2. Anne Meyer, David H. Rose, and David Gordon, *Universal Design for Learning: Theory and Practice* (Wakefield, MA: CAST, 2014).
3. Carli Spina, "How Universal Design Will Make Your Library More Inclusive," *School Library Journal* 63, no. 5 (May 2017), https://www.slj.com/2017/05/diversity/how-universal-design-will-make-your-library-more-inclusive/#_.