Kurzweil 3000®
Supports Universal Design for Learning

What is Universal Design?

The Center for Universal Design at North Carolina State University, which has taken a leadership role in the promotion of Universal Design (UD), defines as "the design of products and environments to be used by all people, to the greatest extent possible, without the need for adaptation or specialized design." The concept of UD was first applied to architecture and has since become a motivating principle in the arts, health care, and education.

One of the earliest examples of UD is the sidewalk curb cut. Initially designed to improve access for people in wheel chairs, creative uses of curb cuts continue to multiply. Today cyclists, skateboarders, and people wheeling strollers and shopping carts are among the many who appreciate the convenience they offer. Curb cuts are also an excellent example of an important premise of universal design—when adaptability is built into a design, people will find numerous uses for it.

What is Universal Design for Learning?

The term Universal Design for Learning (UDL) was coined by CAST (Center for Applied Special Technology) in 1999. CAST found that the principles of Universal Design in architecture and product development could be applied to developing useful educational tools. "Universal" does not mean a single solution that is ideal for everyone. As articulated in Teaching Every Student in the Digital Age, UDL provides "a blueprint for creating flexible goals, methods, materials, and assessments that accommodate learner differences."

UDL is a natural extension of the current work in neuroscience that says each brain processes information differently. CAST's research identified three primary networks that impact learning. The recognition network deals with incoming stimuli and affects "what" students learn. The strategic network mediates how students process incoming information based on such things as past experience or background knowledge. The affective network regulates students' attitudes and feelings about incoming information as well as their motivation to engage in specific activities. Successful teaching and learning involves addressing all three networks simultaneously.

Based on these three networks, CAST cites three principles of UDL:

- Multiple means of representation—to give learners various ways of acquiring information and knowledge

- Multiple means of expression—to provide learners alternatives for demonstrating what they know

- Multiple means of engagement—to tap into learners' interests, offer appropriate challenges, and increase motivation

Applying UDL Principles in the Classroom

Since it's impossible to predict what combination of strengths and weaknesses any particular student will possess, materials in the classroom need to be flexible enough to accommodate students with wide differences in how they access, process or interpret information. UDL makes a clear case for the use of new technologies in the classroom to ensure academic achievement for all students.

These new insights are having a profound effect on classroom practices and are affecting both methods of instruction and the selection of educational materials. However, text-based materials continue to dominate the classroom. By their nature, they present information in a single format that has proven to be limiting for many students. Rather than creating special accommodations for struggling students as an afterthought, UDL advocates encourage educators to seek out tools that students of all abilities can use. Letting students use these tools to learn and take the same tests as their peers allows students to become truly independent and more confident.

UDL and Test Taking

Test taking is one of the primary areas where UDL is being actively applied. While many UDL considerations relate to the design of the test itself (e.g., wording, sentence structure, etc.), there has been a growing concern that students with learning differences are being evaluated on their ability to read or process test instructions rather than on what they know in a given subject area. Therefore, steps must be taken to ensure that all students are being tested on a level playing field.

Kurzweil 3000 Supports UDL

Kurzweil 3000®, developed by Kurzweil Educational Systems®, is reading, writing, and learning software for struggling students. Widely recognized as the most comprehensive and integrated solution for addressing language and literacy difficulties, Kurzweil 3000 embraces and supports the concept of UDL by making print and electronic material available to a broad spectrum of students. The software uses a multisensory approach—presenting print or electronic text on the computer screen with added visual and auditory accessibility. It incorporates a host of dynamic features (including powerful decoding, study skills, and test taking tools) designed to adapt to each individual's learning style and promote active learning. For students who have difficulty physically accessing curriculum materials, it provides a digital means of engaging with text and supports students who use alternative methods for accessing the computer.

UDL advocates the design of products that are usable by all students to the greatest extent possible without the need for further adaptation. Kurzweil 3000 enables schools to convert text materials, including classroom and standardized tests, into a format that provides the range of accommodations most students need to access curricular materials successfully.

> Kurzweil 3000 has allowed our students with disabilities to access the regular education curriculum. The software's versatility allows us as a school district to meet a variety of students' learning needs using just one program, regardless of the grade level or curriculum area.
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> —Elisa Wern, Assistive Technology Specialist
> Alachua County Public Schools, Gainesville, Florida

How *Kurzweil 3000* Supports the Principles of Universal Design for Learning

Multiple means of representation (i.e., recognition network support) *The "What" of Learning*	Using *Kurzweil 3000*, teachers can customize and differentiate instruction in a flexible digital environment: • Provide all paper and digital curriculum materials in a flexible accessible format • Personalize instruction to suit student needs and learning styles using a variety of interactive digital tools: – Sticky Notes, Foot notes, Bubble notes, Hyperlinks, Bookmarks, Highlighters, Circle tools, Voice notes, Column notes, etc. • Use *Kurzweil 3000* with an interactive whiteboard for whole-class instruction and explicit demonstration of strategies with curriculum content • Use Bubble Notes, which automatically pop-up when reading, to teach specific skills, guide students through tasks, or gauge reading comprehension by inserting pre-, post- and during-reading questions • Provide tests in digital format to allow independent access for students with learning differences. Program features can be enabled or disabled for tests depending on the needs of the student and the test requirements. • Create Graphic Organizers, Column Notes, and Study Guides to support student reading, writing and learning by creating alternative means of representing information Using *Kurzweil 3000*, students can: • Follow along with text as each word is read aloud and highlighted • Change text size or color for greater visibility, or magnify individual words for further visual support • Change the Reading Speed or Reading Voice • Choose the amount of text to be read aloud at any one time • Turn the voice off and silently read along with the highlighted text • Easily access a range of audible reference tools including a choice of dictionaries, a thesaurus, a spelling tool, a syllabification tool, as well as a picture dictionary tool for visual vocabulary supports • Use built-in translator or foreign language and pictorial dictionaries to provide support for English language learning • Create audio files to make materials accessible on portable audio players so they can listen wherever they go
Multiple means of expression (i.e., strategic network support) *The "How" of Learning*	*Kurzweil 3000* is compatible with a number of third-party assistive technology tools for students who require diverse means of expression and/or alternative access to the computer. Compatible products include: • Dragon Naturally Speaking from Nuance can be used for Voice Recognition dictation • DiscoverPro from Ablenet can be used to create switch-accessible onscreen keyboards for accessing *Kurzweil 3000* • *IntelliKeys®* alternative keyboard from IntelliTools® can be used with pre-made or custom overlays • AAC Devices, including those from the Prentke Romich Company and Dynavox Technologies, can be used as keyboard emulators with custom pages to access *Kurzweil 3000* Using *Kurzweil 3000*, students have choices for how they engage with and demonstrate their understanding of text: • Independently annotate text, complete worksheets, take tests and write essays using *Kurzweil 3000*'s digital supports • Actively engage with text by taking notes using a variety of accessible tools to fit a variety of learning styles and needs – Sticky Notes, Foot notes, Bookmarks, Highlighters, Circle tools, Voice notes, Column Notes, etc. • Legibly answer test questions by typing answers with text-to-speech support, using recorded voice notes, highlighting answers with a choice of six highlighter colors and two circle tools, or dragging and dropping text within or between documents • Easily reread blocks of text, test instructions or questions as many times as needed to ensure comprehension • Access a variety of tools to support the many stages of the writing process: Pre-writing Brainstorming, graphic organizers, outlines, word prediction, speaking spell check, thesaurus and custom floating word lists to enhance vocabulary usage, writing review checklist, etc. • Proofread work by hearing test answers and written work read back • Organize information by creating outlines, building column notes or using pre-made graphic organizers • Easily extract highlighted text or notes from reading into a separate document to create a study guide or outline for writing • Create bookmarks to return to designated sections of text with a click of a mouse • Use keyboard shortcuts to access most *Kurzweil 3000* menu options
Multiple means of engagement (i.e., affective network support) *The "Why" of Learning*	*Kurzweil 3000* is content independent and can therefore be used across curriculum areas. It is vital for students to be able to independently access age-appropriate content so that they can develop the vocabulary and background knowledge needed to fully participate in class, complete assignments, advance their academic skills, and protect their self-esteem. When students can manage tasks that once were arduous, tiring, or extremely time consuming, they develop a more positive attitude toward their work, gain independence, and get the maximum benefit for their efforts. The success they experience using *Kurzweil 3000* can help increase motivation and encourage lifelong learning.

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