Chapter 1
Universal Design for Learning in Today’s Diverse Educational Environments

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ABSTRACT
Learning can be difficult for a myriad of reasons and not just for those with disabilities and for those dedicated to teaching in its many forms. It can be next to impossible to accommodate the variety of students encountered in today’s diverse learning environments. This is where the principle of Universal Design for Learning (UDL) can be successfully applied. This chapter explores the strides made in creating content that brain-based research supports as a way for not only motivating students to learn, but also for allowing those with disabilities a way to learn that meets their specific needs. Although there is no one surefire way to design learning that teaches everyone, UDL is a stepping-stone to that pursuit. If implemented to its fullest potential, it can be a panacea to reducing many barriers to access and learning.

INTRODUCTION
In the 1970s, Ron Mace, an architect, product designer, and educator, created a design foundation which he coined universal design (NCSU, 2008). Most people are familiar with the application of universal design principles (e.g., curb cuts, automatic door openers, ramps) even if they are not familiar with the actual term. The main function of universal design is to “simplify life for everyone by making products, communications, and the built environment more usable by as many people as possible at little or no extra cost” (CEC, 2005, p. xi). Its features generally benefit other users as well. For example, a curb cut designed for individuals in wheelchairs also benefits people using rolling computer bags, individuals pushing shopping carts, or children on tricycles.
In addition, universal design has spawned other principles since its inception, including Universal Design for Learning (UDL).

**Objectives**

The objectives of this chapter are:

- Examine and describe UDL
- Demonstrate knowledge regarding the history, the frameworks, and the application of the principles of UDL
- Learn how to apply the basic principles of UDL to the learning environment
- Identify the laws related to UDL

**DEFINITION OF UNIVERSAL DESIGN FOR LEARNING**

Students attending school today (K-12 and higher education) are learners with diverse backgrounds; some are obvious (e.g., different cultures, different languages, some have disabilities), while some are not so obvious (e.g., variety of learning styles, various abilities). Dr. David Rose, a developmental neuropsychologist and educator, co-founded the Center for Applied Special Technology (CAST, 2012a) in 1984. He recognized the importance of these learner differences. The concept of UDL grew out of Dr. Rose’s frustration of working with students with disabilities in a “one-size-fits-all” assessment environment. This environment was limited and was not designed to meet their needs nor the needs of a diverse culture of students (Rappolt-Schlichtmann, 2012, p. 3). Universal Design for Learning was designed to provide “a blueprint for creating instructional goals, methods, materials, and assessments that work for everyone – not a single, one-size-fits-all solution but rather flexible approaches that can be customized and adjusted for individual needs” (CAST, 2012b). It also provides students with “an environment where instruction is flexible, equitable, and accessible every day of the school year” (CEC, 2005, p. 2).

Although UDL minimizes the need for assistive technology (AT), it does not completely eliminate it. One of the big differences between AT and UDL is that UDL is not added as a reaction to a need. It is incorporated into a classroom or online course during the design or planning stages. Although UDL cannot solve every issue, it provides a solid foundation for all students to start at the same level and more importantly, before a student ever enters a classroom (whether a physical or virtual space). Specific accessibility issues may need to be addressed on an individual basis, but overall, fewer accommodations will need to be made when UDL principles are applied from the start. As in the case of universal design, UDL benefits others as well. For example, using closed captioning for videos also helps improve comprehension for students with English as a second language, and provides access to information in a quiet environment, such as a library when headphones are not available.

**THE THREE PRINCIPLES OF UNIVERSAL DESIGN FOR LEARNING**

The UDL concept is based on research in the fields of neuroscience, cognitive psychology, and the learning sciences; and results of this research helped in the creation of the UDL Guidelines. These guidelines “can assist anyone who plans lessons/units of study or develops curricula (goals, methods, materials, and assessments) to reduce barriers, as well as optimize levels of challenge and support, to meet the needs of all learners from the start” (National Center on UDL, 2011a). These guidelines also help instructors develop curriculum that not only assists a variety of different students, but also provides an opportunity for designing learning activities that can play to a student’s particular strength. The three principles are: