INTRODUCTION

Buckminster Fuller, a multi-talented innovator of the 20th century, contributed to society as a scientist, engineer, and inventor (left hemisphere/brain dominance), and as a philosopher, psychologist, and essayist (right hemisphere/brain dominance). The multi-faceted dimension that defined Fuller (and other such inventors and leaders) contributed greatly to his successes. Yet, in traditional academic environments, indeed in current ones (which are defined by rigorous standards, high-stakes assessments, and accountability for all), these preeminent leaders of innovation would not have been recognized for their talents or contributions—during their school years. Einstein, who was labeled a failure by his grade school math teachers, proceeded to change how we view and operate in our world—despite his limitations. The educational system did not know how to accommodate his way of learning; yet, he excelled in spite of the failures of public education. In today’s educational climate, many potential Fullers and Einsteins may be experiencing the same failures of our system. This is often true of students who learn differently from how they are taught, including students with disabilities (Smith, 2001).

THE CHALLENGE OF MEETING MULTIPLE STUDENT NEEDS AND STYLES

The design of curricula and learning environments that can meet the needs of all learners is a challenge. Often, attempts are made to retrofit a situation or environment to meet the needs of a specific student or group of students. These attempts to restructure or adapt often fall short of offering a more holistic solution—one that does not single out a particular student or group of students as being different or needing “extra” teacher effort. Rose and Meyer (2000) note that through new studies of the brain, researchers have proven that each of us receives information and learns very differently—depending upon the activity in which we are engaged. This “modularized” learning approach of our brains further supports the importance for educators to include multiple representations of information, pathways for expression, and opportunities for engagement (Rose & Meyer, 2002). Universal Design for Learning (UDL) is a new educational approach for teaching diverse learners by focusing on more flexible applications of technologies, instructional networks, and manipulation of digital content (CAST, 2000).

The communications technology revolution, digital systems, brain research, multiple intelligence theories (Gardner, 1983; Sternberg, 1996), and the civil rights movement of persons with disabilities—for example, nondiscrimination statutes such as the Rehabilitation Act of 1973 as amended, the Americans with Disabilities Act of 1990, and the series of special education laws, now known as the Individuals with Disabilities Education Act of 1997—have merged to create a new era in the UDL educational approach that seeks to meet the needs of all learners without pointing out their differences. It is what Rose and Meyer (2002) call the “intersection of initiatives” (p. 7). They say that our educational initiatives of integrated units, multiple intelligences, multi-sensory teaching, differentiated instruction, performance-based assessments, and computers in schools, digital and Web-based media, and others combine to form UDL.

Universal Design for Learning is based upon discoveries from brain research that the Center for Applied Special Technology (CAST) has translated into technologies designed to enable instructional success for students with diverse learning needs. A precept of UDL requires that instruction and assessment ap-
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