Gaining Access to General Education: The Promise of Universal Design for Learning

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On November 29, 1975 then President Ford signed the *Education of All Handicapped Children Act* (EAHCA, Public Law 94-142) into law, mandating for the first time that children and youth with disabilities be afforded the right to a free and appropriate public education, individualized programming, parental participation in the decision making process, nondiscriminatory identification and evaluation, instruction in the least restrictive environment, while ensuring families due process rights and responsibilities. A little over thirty years have passed since the commencement of this important special education legislation with additional changes to the law and the manner in which we educate and support students with disabilities and their families. Many researchers and practitioners have documented both the accomplishments and challenges brought forth during the law's first three decades of implementation (Jiménez & Graf, in press).

One such challenge has been ensuring adequate access to the general education curriculum for an increasingly diverse group of learners within general education classrooms. As teacher educators and researchers in the field of special education, we recognize the need to prepare general and special educators to meet the needs of students with disabilities, those at-risk for academic failure, and learners from diverse cultural, linguistic, and socioeconomic backgrounds (Grenot-Scheyer, Coots, &

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Bishop-Smith, 2004). One approach to making general education curriculum more accessible to diverse learners regardless of ability, learning style, language, or culture is the application of Universal Design for Learning (UDL). "Grounded in research of learner differences, the capacities of new media, and the most effective teaching practices and assessments, UDL provides a framework for creating more robust learning opportunities for everyone" (Rose & Meyer, 2006, p. viii). By using a UDL approach in the classroom, teachers design their instruction to meet the needs of a diverse group of learners rather than make ongoing adjustments for individual students with special needs (Pisha & Coyne, 2001).

Highlighting the importance of UDL as a fundamental instructional approach has the potential to benefit students and teachers in both general and special education programs. For this special issue, we review the historical background regarding the movement toward greater access for students with special learning needs, the development of Universal Design for Learning as a method for providing access, and discuss supporting the implementation of UDL within school sites and institutions of higher education.

Toward Greater Accessibility

One of the hallmarks of P.L. 94-142 was the provision of least restrictive environment (LRE) requiring that states establish necessary "…procedures to assure that, to the maximum extent appropriate, handicapped children…are educated with children who are not handicapped" (20 U.S.C. 1412(5) (B).

The law defined LRE as the setting where students with disabilities receive special education services and experience the greatest success toward progress. Depending on the needs and goals of the student, LRE included placements falling along a continuum from least to most restrictive (e.g., general education classroom, resource room, separate special education school site) (Friend, 2005).

In the 1990s as Congress prepared for the next reauthorization of P.L. 94-142, its members reviewed research demonstrating higher performance by students with disabilities when provided greater access to general education curriculum. As a result, committee members inserted explicit language in the law supporting greater access to general education programs. The law's reauthorization in 1997, renamed the *Individuals with Disabilities Education Act* (IDEA), reflected these growing sentiments regarding greater accessibility: "Over 20 years of research and experience has demonstrated that the education of students with disabilities can be made more effective by having high expectations for

such children and ensuring their access in the general curriculum…" (20 U.S.C. §1400 (c)(5)(a)(1997)). The most recent reauthorization of the IDEA (2004) maintains much of this same language but extends these ideas by requesting explicitly that access to the "general education curriculum" occur "…in the regular classroom, to the maximum extent possible" (20 U.S.C. § 1400 (c)(5)(2004)). Now more than previously, IDEIA 2004 calls for students with disabilities to have access to general education curriculum within general education classrooms as the most appropriate method of providing special services within the least restrictive environment (Karger, 2005).

In 2001, Congress passed the *No Child Left Behind Act* (NCLB), which required that all children, including those with disabilities, attain proficiency on state achievement standards and assessments (20 U.S.C. § 6301). Such legislative and policy efforts increasingly require teachers to make the curriculum accessible, allow students to be actively involved with the curriculum, and monitor students' progress (Hitchcock, Meyers, Rose, & Jackson, 2002; Karger, 2005). Exactly "where" a student with a disability should be educated is no longer the most relevant question. These developments have contributed to a fundamental shift in schools' education of students with disabilities and their access to general education.

As a result of the law's increasing emphasis for more inclusive experiences for students with disabilities, more students receive special education services within general education settings than ever before. In the U.S. in 2005, approximately 54% of students receiving special education services spent 80% or more of their day in a regular classroom (U.S. Department of Education, 2006). These numbers include not only students with high incidence, mild to moderate disabilities (e.g., learning disabilities, speech and language disorders) but also students with more severe cognitive impairments. Over the last decade, accessing the general curriculum for students with severe disabilities has become a major focus of researchers developing more effective educational approaches for these students (Spooner, Dymond, Smith, & Kennedy, 2006).

However, merely providing students with disabilities access to general education programs does not ensure their full acceptance within these settings or guarantee meaningful participation or comparable outcomes (Artiles, 2003; Wehmeyer, 2006). State and federal policy makers have increasingly imposed tremendous challenges on schools to implement numerous initiatives (e.g., No Child Left Behind), educational standards, and high stakes testing, making it more difficult for students with special needs to function adequately within general education settings. General educators often feel ill-equipped to appropriately address the needs of

students with disabilities and prepare them for higher standards and expectations (Schumm & Vaughn, 1995). Doing so may require more specialized instruction than they are willing or able to provide (Artiles, 2003; Mclaughlin & Tilstone, 1999).

Furthermore, over the last three decades, students in need of additional assistance in the general education classroom include those who are learning necessary academic content in a language they are only beginning to acquire. Of those students who currently receive special services, 54% come from a variety of ethnically and linguistically diverse backgrounds (U.S. Department of Education, 2004). Projected estimates for our general school population indicate that by 2030, 43% of all students will speak English as a second language (USDOE & NICHD, 2004). An increasing number of students with diverse learning and linguistic backgrounds must learn core curricula and meet set educational standards with limited literacy and language skills to read standard classroom textbooks and communicate effectively about what they know.

To adequately address these legislative changes, educational policies and the changing landscape of our school population, all teachers must learn to design unique instructional programs that actively support learners with and without disabilities. We must move beyond discussions regarding inclusive instruction for students with special needs toward educational programs and methods that address the learning needs and skills of all learners. Universal Design for Learning shifts the focus toward appropriate instruction for "all" learners rather than those with special needs exclusively. The following section provides an introduction to UDL, its origins, and components.

Advent of Universal Design for Learning

Ronald Mace, an architect and director of the Center for Universal Design at North Carolina State University, first coined the term Universal Design to refer to the concept of simplifying life for everyone by making products, communication systems, and the "built environment" more usable by more people at little or no extra cost (Bowe, 2000). A working group of individuals at the center (product designers, engineers, architects, etc.) developed seven guiding principles[1] (Center for Universal Design, 1997) for the purpose of incorporating inclusive design features in new products and the general environment (McGuire, Scott, & Shaw, 2006). Examples of such products and environmental features include closed captioning on television sets (for individuals who are hard of hearing and airport passengers viewing television in noisy surroundings), and curb cuts (for individuals who

use wheelchairs, baby strollers, dollies, and roller skates) (McGuire, Scott, & Shaw, 2006).

In 1984, David Rose and Ann Meyer co-founded the Center for Applied Special Technology (CAST) and began to define and extend the principles of UD to the learning environment (Rose & Meyer, 2000, 2002). The CAST staff has used technology as a primary resource to make classrooms, instruction, and curricula more universal. They have defined the principles for Universal Design for Learning (UDL) as providing students with multiple means of representation, expression, and engagement in the classroom (Rose & Meyer, 2000, 2002, 2006). When applied, these principles can assist teachers to "…recognize barriers to learning, strategically address such barriers, and monitor student progress" (Coyne, Ganley, Hall, Meo, Murray & Gordon, 2006, p. 1) within the curriculum. Providing students with multiple means of representation supports recognition learning and gives learners various ways of acquiring information based on their individual learning style, experiences and background knowledge. A history teacher for instance, reviewing the Civil Rights Movement, may bring in speakers, show television footage, and/or discuss relevant current events. Instruction that provides students with *multiple means of expression* supports strategic learning and creates several alternatives for demonstrating what learners know. As a method of assessing knowledge of the solar system, a teacher may have students individually, in pairs or small groups create a poster, script a news conference, build a model, and/or develop a video or Powerpoint presentation on the topic. These methods provide viable alternatives for those learners who experience difficulty demonstrating this knowledge through more traditional means (e.g., writing a paper, completing a written examination) given limitations in grade-level writing and reading skills.

Teachers who create *multiple means of engagement* support affective learning by tapping into learners' interests and offering appropriate challenges to increase their motivation. For instance, a high school English teacher may use songs from the hip hop genre when introducing students to the concept of rhetorical devices (i.e. imagery, symbolism) in order to familiarize learners to these concepts and engage them in the process (Woodyard, in press). CAST developed these guiding principles based on Vygotsky's (1978) seminal work describing the Zone of Proximal Development (the range in which learning takes place), and recent advances in neuroscience research, mapping the way the brain processes information (Rose & Meyer, 2006). UDL therefore is not a single practice or method but a framework that encompasses several existing methods relevant to its principles for enhancing the learning process for diverse learners.

This framework requires teachers to change the way they view the teaching- learning process, and how they initially approach lesson planning and instruction for all learners. UDL anchors existing practices into a strong theoretical framework requiring teachers to *anticipate,* up front, in their instruction how activities and methods support multiple means of presentation, expression, and engagement. Through UDL, teachers develop appropriate goals designed to address the needs of a wide range of students and implement instructional methods responsive to individual differences (Rose & Meyer, 2002). UDL encompasses—or at least complements—existing and well-known instructional practices (e.g., reciprocal teaching, cooperative learning, differentiated instruction) (see Table 1 for examples) (Coyne et al., 2006). These practices support the principles of UDL which serves as an inclusive framework for these teaching methods. Rather than view it as another innovation or approach to learning teachers feel they must adopt, UDL trainers encourage teachers to plan their instruction with existing tools and methods that reinforce these principles while slowly accumulating new methods through ongoing training and support (Rose & Meyer, 2002).

Universal Design for Learning may sound to some like just good teaching practices. UDL, however, is a promising framework making more "…explicit what good teaching is" (Rose & Meyer, 2006, p. 35) in order to support inclusive educational experiences for students with and without disabilities. It provides a theoretical framework based on research related to how individuals learn best and in what context, integrating relevant methods of instruction. How then have states, districts and universities begun to adopt the framework of UDL within their instructional programs?

Supporting UDL Implementation

Facilitating Change

Universal Design for Learning has finally made center stage in the national world of education. Most recently in the reauthorization of IDEIA (2004), the law specifically supports the development and use of technology with UD features and the incorporation of UD concepts in the development of educational standards, assessments, curricula, and instructional methods to support the education of students with disabilities. However, "UDL has, in some ways, become a buzzword, a bandwagon easily jumped on, given its intuitive appeal" (McGuire, Scott, & Shaw, 2006, p. 171). If the principles of UDL have gained such significant recognition, why haven't more schools begun to genuinely

Table 1
Instructional Methods that Support/Conplement UDL Principles*

UDL Principles	Method & Definition	Literature
Multiple means of expression, presentation & engagement	*Differentiated Instruction* Definition: Differentiate content – what students learn; Process – how students learn; and Product – how students demonstrate their knowledge. Example: Teacher uses graphic organizers to scaffold students' writing when teaching them the process of writing a paragraph.	(Tomlinson, 2001)
Multiple means of expression & engagement	*Cooperative Learning* Definition: Students work together in small groups, tapping one another as sources for learning. Example: Small groups of students research a select planet and develop a short paper, model, and Powerpoint presentation.	(Wood, Algozzine, & Avett, 1993)
Multiple means of presentation & expression	*Reciprocal Teaching* Definition: Involves small group dialogues between teachers and students around text, reviewing comprehension strategies. Example: Students use Thinking Reader to read assigned text before participating in small group dialogues. Thinking Reader provides adjustable font size, hyperlinked definitions, text-to-audio capacity and computer assisted support to learn comprehension strategies.	(Palinscar, 1986; Palinscar & Brown, 1985; Rose & Meyer, 2002)
Multiple means of expression, presentation & engagement	*Thematic Teaching* Definition: Lesson instruction is centered on a particular theme that transcends various content areas. Example: As a science project, students conduct an archeological dig for dinosaur fossils in a local playground using tools and artifact recovery methods while studying the unit "Our Word Long Ago." Students write/ draw about their experience and/or present an oral presentation.	(Eichinger & Downing, 2002)
Multiple means of presentation & engagement	*Community Based Instruction* Definition: Experiences within the community that apply concepts or skills learned in the classroom. Example: Students visit local hospital, police and fire departments when studying "Community Helpers."	(Schukar, 1997; Westling & Fox, 2000)

*Note. Each method can potentially reflect all three components of UDL to varying degrees.

adopt and implement this framework? Encouraging change in schools is often a difficult endeavor given various challenges including a lack of general capacity to initiate, develop and sustain change efforts (Fullan,

2003). Rose and Meyer (2002) address this issue by proposing both a bottom-up and top down approach to UDL implementation.

> In the world of education , bottom-up changes are driven by individual students, parents, teachers, and administrators effecting change in classrooms, teaching methods, homework practices, and curriculum materials. Equally important are top-down changes—systemic changes in educational policies, professional development methods, publishing practices, economic models, and the participation of professional and lay organizations. (pp. 157-158)

As an example of a bottom-up approach to school change, Rose and Meyer (2002) describe their work within the Concord, New Hampshire school system. Donna Palley, the district's special education coordinator, relied on a "grassroots approach," working with individual and small groups of teachers to help develop solutions to identified barriers in their classroom instruction. Parents provided the necessary encouragement to promote change at the classroom, school site and district levels. General education teachers working with special educators and other specialists helped to support a common agenda. As a result of their extensive work with the Concord school system Rose and Meyer (2002) identified seven components for school districts to follow when implementing UDL related to technology, administrative support, training, professional roles, collaboration, parent involvement and funding (see Table 2). It is essential for districts and schools to be thoughtful about their implementation of UDL and what it requires, if it is to be successful and not just another educational innovation.

Rose and Meyer (2002) attribute Concord's success also to top-down approaches to UDL implementation including Concord's ongoing collaboration with CAST. Other top-down approaches incorporate the extensive efforts of states like Kentucky, Louisiana, Ohio, Maryland and New York that encourage technology planning, teacher-education and material development supporting UDL implementation (Müller & Tschantz, 2003; Rose & Meyer, 2006). Presently, Kentucky supports UDL through the Kentucky Accessible Materials Consortium (KAMC), a partnership with the Department of Education and the University of Louisville; the Kentucky Accessible Materials Database (KAMD), a repository of accessible digital content materials; available text-to-speech software; online assessment development; and the UDL Model Schools Project (Ender, Kinney, Penrod, Bauder, & Simmons, 2007). Specifically, Kentucky's Model Schools Project is a partnership between the Kentucky Department of Education and the University of Louisville providing three year grants at $30,000 annually to six schools to develop

Table 2
The Concord Model: Key Components & Examples of UDL Implementation

Key Components	Examples
Technology Infrastructure and Support	Districts digitize materials and build collaboration between technology and educational specialists.
Administrative Support	School principals demonstrate buy-in by supporting release time for training and support.
Teacher Training and Support	Administrators and consultants listen to teachers and brainstorm solutions to identified barriers.
Redefined Roles for Special and Regular Education Teachers	Special educators assist students with and without disabilities.
Collaborative Curriculum Planning	Teachers work with consultants to reconsider curricular goals, and gather new tools and supports.
Parent and Community Involvement	Parents volunteer to support UDL within classrooms and school sites.
Creative Funding	Districts, schools, and teachers develop and submit grant proposals supporting UDL practices.

Note. Modified from Rose and Meyer (2002).

a school wide model program utilizing best practices of UDL principles across the general education curriculum (Ender et al., 2007). Similar collaborative, multiagency approaches may ensure more effective and sustainable UDL practices within our schools.

Postsecondary Implementation

As teacher-educators we are particularly interested in implementing UDL practices within our preparation of candidates seeking credentials as educational professionals in the schools. The Center on Postsecondary Education and Disability (CPED) at the University of Connecticut works toward understanding the design and delivery of appropriate instruction within postsecondary settings and the evaluation of student learning. CPED conducts workshops on helping college faculty apply Universal Design to the instructional design process (known as Universal Design for Instruction, UDI) (McGuire, Scott & Shaw, 2006). To ensure a deep penetration of UDI design and implementation among a critical mass of faculty, this project has established learning communities of faculty to create UDI features in course curricula in diverse postsecondary institutions. One of the primary features of the project is FacultyWare (http://facultyware.uconn.edu), a web-based resource for postsecondary faculty to use for designing their courses using UDI principles. We are

encouraged by CPED's work, as well as CAST's and the Access Center's teacher and trainer resources (http://lessonbuilder.cast.org/ and http://www.k8accesscenter.org/index.php, respectively) that can support Universal Design practices within teacher preparation programs. We hope to engage in further discussions concerning these resources and methods with colleagues both within and outside of our institution.

Research within postsecondary settings is needed to determine effective ways to prepare K-12 teachers to actually implement a comprehensive UDL curriculum at the school and classroom level (McGuire, Scott, & Shaw, 2006; Spooner, Baker, Harris, Ahlgrim-Delzell, & Browder, 2007). In one experimental study, Spooner and colleagues examined the implementation of UDL components within the instructional plans of in-service and pre-service general and special education teachers across four university teacher-education courses. Researchers provided experimental group participants with one hour of instruction in UDL principles and how these principles apply to planning instructional lessons. At pretest, participants in both experimental and control groups were given a case study of a child with a disability describing the student's strengths, interests, and three general curricular goals. Researchers asked participants to create a lesson plan within a span of 20 minutes, focusing on one curricular area. Investigators provided a comparable, but novel case study at post-test. Lesson plans for both groups were scored according to the degree to which the student made the lesson accessible for all learners including the child with the disability. Students in the experimental group showed significant gains from pretest to posttest and outperformed their control group counterparts. These results indicate that with explicit instruction in preparation courses, pre-service and in-service educators can design more accessible lessons for all students including those with specific learning needs. However, more research in this area is needed specific to how teacher education programs can better prepare educational professionals to implement a UDL framework.

Final Thoughts

In order to create more UDL inspired programs, educators, parents, administrators, specialists, and institutions of higher education must work beyond artificially established program boundaries toward more collaborative relationships across programs (Downing, 2006). Universities often set the tone for what teachers and other education professionals experience in the schools, an environment of unambiguous division (e.g., general versus special education) and seemingly privileged knowledge

(e.g., administration, school psychology, counseling) without necessarily sharing a single approach to educating students (Jiménez, 2006).

We cannot expect teachers and school professionals to change the way they provide instruction and collaborate without expecting universities to change the way they prepare educational professionals in the field (Jiménez, 2006). Universal Design for Learning, through technology and pedagogical strategies, provides a unifying framework that encompasses many of the approaches we already address in our K-12 schools and professional preparation courses. We encourage institutions of higher education to collaborate across programs and systematically and explicitly introduce the concept of Universal Design for Learning as a viable framework upon which to build. We by no means have found the answers to these larger issues facing institutions of higher education and school districts across the nation, however, we felt this special issue provided us with a formal platform upon which to recommend UDL as a very plausible and necessary alternative.

Note

[1] The Center for Universal Design developed seven principles for UD which include: 1. Equitable Use, 2. Flexibility in Use, 3. Simple and Intuitive, 4. Perceptible Information, 5. Tolerance for Error, 6. Low Physical Effort, and 7. Size and Space for approach and use (Center for Universal Design, 1997).

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