

Universally Accessible Instruction: Oxymoron or Opportunity?

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Abstract

The movement to extend universal design from physical to instructional environments has escalated in the past two decades. Frameworks to guide the field of postsecondary education in its efforts to intentionally build accessibility features into college teaching and course materials include Universal Design in Education, Universal Design for Instruction, Universal Design for Learning, Universal Design of Instruction, and Universal Instructional Design. Implementation activities advanced in part by federal funding have generated numerous resources including journal articles, websites, professional development materials, and thematic conferences and training. Yet, impediments that must be addressed if practices are to expand and evolve in creative ways for diverse audiences in postsecondary settings include a dearth of empirical evidence about the efficacy of various approaches as well as confusion in terminology. This article includes a description of various frameworks, factors that have played a role in advancing the concept at the postsecondary level, resources associated with implementation efforts, and calls for collaborative action across administrative units to promote an inclusive campus culture through efforts to intentionally design and deliver accessible instruction.

Keywords: Universal design, inclusive college instruction, accessible instruction, instructional design frameworks (UDE, UDI, UDL, UID)

As the *Journal* celebrates thirty years of publication, compelling evidence underscores its role in chronicling substantive efforts to promote the advancement of full participation in higher education for persons with disabilities. Moving beyond the parameters of access to the physical environment that characterized much of our work in the 1950's through the 1980's, over the last two decades the field has embraced the notion of universal design in the instructional environment. This article examines initiatives to extend access to postsecondary instruction and curriculum, which in reality are at a nascent stage. Discussion of the chronology of frameworks that are widely represented in the literature on implementation studies is followed by an overview of factors that have advanced these frameworks and calls to action to sustain the movement.

Foundational Frameworks for Designing Accessible Instructional Environments

Beginning with efforts to accommodate college students with physical disabilities following World War II, institutions of higher education have progressed from creating accessible buildings and spaces to assuring access to educational programs. The focus on accessible instruction, generally adapted from the concept of universal design (UD) in the physical environment (Center for Universal Design [CUD], 1997), encompasses several creative frameworks that permeate the literature predominantly since the late 1990s. Over the past decade, these frameworks have provided a context for a broad array of applications centered on proactively designing college teaching that is responsive to diverse learners. Initial discussions about creating inclusive learning

environments for children with physical, sensory, and learning challenges began in the 1980s when the Center for Applied Special Technology (CAST) began to explore flexible curricular materials and activities and the use of new technologies to meet the needs of students with diverse learning profiles (U. S. Office of Special Education Programs, 1999). In 1995, CAST began to articulate Universal Design for Learning (UDL) and its principles (Center for Applied Special Technology, 2014) to guide “curriculum developers and teachers in applying the flexibility of digital media to create curriculum with built-in adjustability” (Rose & Meyer, 2006, p. ix). Implementation of UDL to remove barriers from the curriculum is guided by three principles derived from Vygotsky and research on the neuroscience of learning that are further delineated by 31 guidelines for practice. Three neural networks are essential in the learning process, according to Vygotsky: recognition, strategic, and affective networks (Rose & Meyer, 2006). The UDL principles displayed in Table 1 were first published in 1998 (Meyer & Rose, 1998) with the purpose of supporting the three neural networks in all facets of the curriculum (teaching and assessment methods, materials, etc.). Although UDL is not a technology-only approach, by providing a context it can lead to effective technology use supporting all learners (Coyne et al., 2006).

Within the context of transforming the culture of higher education to be inclusive of all students, Silver, Bourke, and Strehorn (1998) targeted their work based on UD exclusively to postsecondary instructional settings. Their exploratory study on universal instructional design (UID), the first to introduce the concept of UD in a college setting, involved faculty at a single, large, research university who were asked to comment on flexible instructional accommodations (e.g., accessible class notes, scaffolding, study guides, visual aids, multimodal presentations, extended test time). Faculty focus groups also identified challenges of the approach that still remain as impediments to widespread adoption of any framework fifteen years later, and these authors underscored the need for more research to determine the necessary components of a UID approach. Although no principles or guidelines for implementation were articulated, the exploratory work of Pliner (2004) and Silver et al. (1998) to develop a working definition comprises a significant contribution to the field that has served as a framework for other applications (see Table 1). Higbee (2003) used the UID concept in a postsecondary curriculum transformation project that generated eight guidelines (Fox, Hatfield, & Collins, 2003) adapted

from the CUD’s UD principles (1997) and Chickering and Gamson’s work (1987), and the University of Guelph based its training with faculty adapting their courses to be more inclusive on the UID framework (Palmer & Caputo, 2003).

Universal Design in Education (UDE) was defined by Bowe (2000) as “the preparation of curricula, materials, and environments so that they may be used, appropriately and with ease, by a wide variety of people” (p. 45). He based this definition on ideas about curriculum access specified in the 1997 Reauthorization of the Individuals with Disabilities Education Act (IDEA). Orkwis and McLane (1998) had discussed these ideas, and they were presented in a publication of the U.S. Office of Special Education Programs (1999) that noted the benefits of using technology to create accessible curricula. Bowe used the UD principles and 31 guidelines from the CUD as the basis for instructional examples for K-postsecondary settings.

Scott, McGuire, and Foley (2003) described Universal Design for Instruction (UDI), a concept that includes nine principles (Scott, McGuire, & Shaw, 2001). Seven were adapted from the CUD; two were created based on literature sources about effective and validated instructional strategies with students of varying abilities (Kameenui & Carnine, 1998) and recommended practices for college teaching (Chickering & Gamson, 1987). With applications intended for postsecondary faculty teaching with or without technology aids, the UDI principles represent a synthesis from seminal resources on UD and effective teaching to articulate new educational definitions for this UD framework.

Finally, Burgstahler (2007) has described Universal Design of Instruction, which also draws on the UD principles with instructional examples that are organized under eight performance indicator categories. She stated that UD is a characteristic “that can be applied in any general philosophy or approach to instruction or any instructional practice” (2008, p. 28). The next section delineates transformative legislation and initiatives that have promoted accessibility and inclusive instructional environments.

Catalysts for Change

Throughout the disability rights movement, legislation has been at the core of advocacy and action. At the K-12 level, strategies to improve access to the general education curriculum for students with disabilities (SWD) are required by the Individuals with Disabilities Education Act Amendments ([IDEA],

1997). Early support for incorporating digital tools in elementary and secondary curricula included federal funding of several initiatives including the work of CAST (U.S. Office of Special Education Programs, 1999). At the postsecondary level, Subpart E of Section 504 of the Rehabilitation Act of 1973 requires non-discriminatory treatment to assure equal opportunity. Access historically has been based on academic adjustments and accommodations, an approach described by some as reactive and based upon a deficit model (Burgstahler, 2008; Jones, 1996; Kroeger, 2010).

Revisions to the Higher Education Opportunity Act of 2008 (HEOA) shift the focus to a proactive approach to advance the goal of inclusive instruction. A definition of universal design applied to learning is provided, meaning a scientifically valid framework for guiding educational practice that: (a) provides flexibility in the ways information is presented, in the ways students respond or demonstrate knowledge and skills, and in the ways students are engaged; and (b) reduces barriers in instruction, provides appropriate accommodations, supports, and challenges, and maintains high achievement expectations for all students, including students with disabilities and students who are limited English proficient (Title 1, Section 103, a)(24)(A)(B). More specifically, training future teachers to create more inclusive environments using this approach is emphasized. Wording that extends to English language learners whose background knowledge and verbal lexicons can create barriers to instructional access can serve as a springboard for collaborative efforts across campus academic support services to develop faculty resources for teaching diverse learners. UD and its instructional applications are a natural fit.

Other catalysts with tremendous potential for advancing instructional access include technology-targeted federal legislation and specific rulings of the Office for Civil Rights about accessibility of all instructional materials including digital resources. Section 508 of the Technology Related Assistance for Individuals with Disabilities Act of 1988 and the World Wide Web Consortium's Web Accessibility Initiative (W3C-WAI) delineate requirements and standards for web accessibility. As faculty incorporate more electronic and information technologies into the classroom, it is imperative (and serendipitous!) that training and assistance in creating accessible instruction become a priority for systematic, institution-wide, collaborative planning and training. Disability service providers can play a key role through collaboration with multiple campus units to advance "a culture shift to facilitate

the full participation of all students, including those with disabilities" (Huger, 2011, p. 3).

In addition to legal mandates, federally funded grant projects have effected change. College enrollment of students with disabilities has shown a trend of steady growth (Raue & Lewis, 2011), in part reflecting federal regulations about postsecondary transition planning (Individuals with Disabilities Education Improvement Act, 2004). Recognizing the significant role of college faculty in teaching students with disabilities, efforts to train them to more effectively address students' learning needs were hastened by federal funding initiated in 1999 through the U. S. Office of Postsecondary Education (OPE). A competitive grant process to promote a quality higher education for students with disabilities extended through four three-year funding cycles (1999-2011). More than 72 million dollars for demonstration projects were awarded to 94 applicants to develop creative, effective, and efficient teaching methods and other strategies for faculty and administrators. In their abstract, 40 of the projects explicitly identified goals and activities based on an application of UD to teaching and instruction through professional and curriculum development activities (U. S. Office of Postsecondary Education, 2014). Additional funding from 2000-2014 totaling more than 80 million dollars was appropriated by the National Science Foundation (NSF) under its Research in Disabilities Education program (M. Leddy, personal communication, April 30, 2014) for research including students with disabilities in STEM disciplines. Several grantees incorporated UDL and UDI frameworks in their implementation efforts. A key selection criterion for funding decisions by both agencies is dissemination of project information and products. The Journal serves a pivotal role in advancing knowledge and research about instructional practices and outcomes based on UD frameworks.

Promoting UD Based Inclusive College Instruction

The Role of the *Journal of Postsecondary Education and Disability*

One mechanism for cataloging progress in advancing the concept of UD as a tool for instructional access, and one that seems fitting on a thirtieth anniversary, is to examine efforts by the *Journal* to chronicle an emerging trend. An informal approach was used to review titles and abstracts of published manuscripts dating back to those in the *Journal's* precursor publication, the *Association on Handicapped Student Services Programs in Postsecond-*

Table 1

A Chronology of Design Frameworks and Principles for Postsecondary Instruction and Curriculum

| Framework | Source | Principles |
|--|-------------------------------|--|
| Universal Design for Learning (UDL) | Meyer & Rose (1998) | <ul style="list-style-type: none"> - Multiple methods of presentation - Multiple methods of expression - Multiple options for engagement |
| Universal Design in Education (UDE) | Bowe (2000) | <ul style="list-style-type: none"> - 7 principles of UD <ul style="list-style-type: none"> • equitable use • flexibility in use • simple and intuitive • perceptible information • tolerance for error • low physical effort • size and space for approach and use |
| Universal Design for Instruction (UDI) | Scott, McGuire, & Shaw (2001) | <ul style="list-style-type: none"> - Adapted from 7 principles of UD <ul style="list-style-type: none"> • Equitable use. Instruction is designed to be useful to and accessible by people with diverse abilities. • Flexibility. Instruction is designed to accommodate a wide range of individual abilities. • Simple and intuitive. Instruction is designed in a straightforward and predictable manner regardless of the student's experiences, knowledge, language skills, or current concentration levels. • Perceptible information. Instruction is designed so that necessary information is communicated effectively to the student regardless of ambient conditions or the student's sensory abilities. • Tolerance for error. Instruction anticipates variation in individual student learning pace and prerequisite skills. • Low physical effort. Instruction is designed to minimize nonessential physical effort in order to allow for maximum attention to learning. • Size and space for approach and use. Instruction is designed with consideration for appropriate size and space for approach, reach, manipulation and use regardless of a student's body size, posture, mobility, and communication needs. - 2 additional principles <ul style="list-style-type: none"> • Community of learners. The instructional environment promotes interaction and communication among students and between students and faculty. • Instructional climate. Instruction is designed to be welcoming and inclusive. |

(Table 1 Continued)

| | | |
|---------------------------------------|-----------------------------|--|
| Universal Instructional Design (UID) | Higbee (2003) | <p>- 8 principles based on UD and Chickering & Gamson</p> <ul style="list-style-type: none"> • Create a climate that fosters trust and respect. • Determine the essential components of the course. • Provide clear expectations and feedback. • Explore ways to incorporate natural supports for learning. • Provide multimodal instructional methods. • Provide a variety of ways for demonstrating knowledge. • Use technology to enhance learning opportunities • Encourage faculty-student contact. |
| | University of Guelph (2003) | <p>- 7 principles based on UD</p> <ul style="list-style-type: none"> • Be accessible and fair to all parties. • Be straightforward and consistent. • Provide flexibility in use, participation and presentation. • Be explicitly presented and readily perceived. • Provide a supportive learning environment. • Minimize unnecessary physical effort or requirements. • Ensure a learning space that accommodates both students and instructional methods. |
| Universal Design of Instruction (UDI) | Burgstahler (2007) | -7 principles of UD |

ary Education Bulletin (1983-1986, volumes 1-4), and extending to archived issues of the *Journal on Postsecondary Education and Disability* (JPED) (1991-2013, volumes 9-26) on the AHEAD website. *Journal* volumes 5-8 (1987-1990) were accessed in a database developed by the Literature Mapping Work Group (2014). Manuscript titles and abstracts were reviewed to identify those with explicit reference to UDI, UDL, UID, UD and inclusive instruction, and UD in higher education (UDHE), a generic term reflecting the application of UD to diverse areas such as student affairs, web page design, information dissemination, and instruction (Scott, Loewen, Funckes, & Kroeger, 2003). None of the published manuscripts referenced UDE. A number of manuscripts did refer to one or more of the terms in the narrative sections but not in their title or abstract. Manuscript reference lists were not reviewed for citations pertinent to the search terms. Prior to 2003, none of the *JPED* articles met the review criteria. In 2003, *JPED*'s content began to reflect efforts to extend the UD concept from the physical to the instructional environment. From 2003-2013, 23 articles have focused specifically on UD based frameworks for inclusive approaches to teaching with three topical issues, Volumes 17(1), 19(2), and 25(3). Manuscript content includes approaches to professional development, examples of instructional strategies and methods, faculty implementation activities, and students' and faculty perceptions of the utility of inclusive strategies. Only a limited number described research about outcomes of UD based instruction.

Other evidence of AHEAD's leadership role in advancing educational access and inclusive instructional environments is seen in sponsorship of a UD Think Tank in 2002. Many of the questions, barriers, and recommendations articulated by the Think Tank continue to be relevant a decade later including the charge to pursue issues of inquiry for research. AHEAD has also compiled a web page with links to numerous sources of information (Universal Design Resources, <https://www.ahead.org/resources/universal-design/resources>).

Where We've Been...and Where We're Headed

Without question, interest in extending the UD paradigm to college teaching is dynamic, expanding, and engaging diverse audiences. Regardless of terms used in an informal Internet search (e.g., UDI, UDL, UID, UDE, UDHE, postsecondary instruction, college teaching, universal design, universal design for learning, universal design for instruction, universal instructional design, universal design in education,

universal course design, college teaching and learning), hundreds of links exist to articles, websites (many with inactive links), and resources. Table 2 presents links to diverse resources such as disability support offices, faculty oriented teaching and learning sites, and professional conferences sponsored by organizations and universities, all of which promote accessibility, universal design focused on teaching, or technology applications for inclusive classrooms. Professional organizations are instrumental in disseminating emerging instructional practices based on UD frameworks through presentations at national and regional conferences. Networking with campus colleagues about their professional affiliations can foster interest in professional development outlets and joint presentations that address creative approaches to teaching today's increasingly diverse undergraduates in traditional, blended, online, and flipped courses. Table 3 displays links to web sites that incorporate tools and inclusive strategies for use in course redesign including sites that were developed through OPE funding. Numerous guides, checklists, and descriptions exist on the Internet of ways to incorporate strategies into college teaching, whether shaped by UDL, UDI, UID, or other UD based frameworks. Journals with a focus on diverse audiences are publishing articles relevant to inclusive instruction (e.g., *Educausereviewonline*, *International Journal of Teaching and Learning in Higher Education*; *Journal of Accessibility and Design for All*; *Journal of Diversity in Higher Education*).

Interest in universal design and postsecondary instruction has become a topic of international interest with notable efforts to promote the idea in a number of countries including the European Union. The focus of a recent international conference in Dublin (Association for Higher Education Access & Disability, 2013), "Is Universal Design of Education Any of My Business," generated the interest of presenters and participants from nine countries underscoring the dynamic movement to promote accessible classrooms and materials across geographic boundaries. Presentations focused on topics such as embedding UD in the curriculum, designing materials based on UDL and UDI; digital inclusion; and accessibility in massive, open, online courses (MOOCs). Among international educators whose work often includes students with cultural differences as well as language barriers in addition to students with disabilities, the relevance of an inclusive approach resonates with their efforts to remove barriers and to promote international study. McGuire and ten Bloemendal (2013) recently introduced the notion of UDI as a template for in-

Table 2

Resources Promoting UD Based Approaches to College Teaching

| Resource | URL |
|--|---|
| Mission Statements | |
| <ul style="list-style-type: none"> University of Arkansas/Little Rock Lone Star College System | <ul style="list-style-type: none"> http://ualr.edu/disability/home/mission/ http://www.lonestar.edu/faculty-staff-reasonable-accommodations.htm |
| <ul style="list-style-type: none"> AHEAD | <ul style="list-style-type: none"> http://www.projectshift-refocus.org/index.htm |
| Faculty Teaching and Learning Sites | |
| <ul style="list-style-type: none"> Cornell University | <ul style="list-style-type: none"> http://www.cte.cornell.edu/teaching-ideas/designing-your-course/universal-design.html |
| <ul style="list-style-type: none"> Michigan State University The Ohio State University University of Oregon | <ul style="list-style-type: none"> http://fod.msu.edu/oir/universal-design-learning-udl http://ada.osu.edu/resources/fastfacts/index.htm http://aec.uoregon.edu/faculty/reference.html |
| Professional Conferences | |
| <ul style="list-style-type: none"> The Sloan Consortium | <ul style="list-style-type: none"> http://sloanconsortium.org/conference/2014/blended/universally-designed-instruction-tools-strategies-and-pedagogical-practices- |
| <ul style="list-style-type: none"> International Conference on Computers Helping People with Special Needs | <ul style="list-style-type: none"> http://www.uld-conference.org/programme/topical-sections |
| <ul style="list-style-type: none"> University of New Brunswick | <ul style="list-style-type: none"> http://www.unb.ca/conferences/udlconference/english/proposals.html |

Table 3

Sources for Information and Tools Based on UD Frameworks for Instruction

| Source | URL |
|------------------------------------|---|
| California State University CAST | http://www.udluniverse.com/ |
| Colorado State University | http://www.udlcenter.org/aboutudl/udlguidelines |
| Renton Technical College | http://accessproject.colostate.edu/ |
| University of Arkansas | http://www.rtc.edu/AboutUs/DSDPGrant/ |
| University of Connecticut | http://ualr.edu/pace/index.php/home/hot-topics/ud/ |
| | http://www.udi.uconn.edu/ |
| | http://www.facultyware.uconn.edu/home.cfm |
| University of Guelph | http://www.uoguelph.ca/tss/uid/ |
| University of Iowa | http://research.education.uiowa.edu/universalaccess |
| University of Massachusetts/Boston | http://www.eeonline.org |
| University of Minnesota | http://www.cehd.umn.edu/passit/ |
| University of Northern Colorado | http://www.unco.edu/equip/ |
| University of Oregon | http://aec.uoregon.edu/faculty/reference.html |
| University of Washington | http://www.washington.edu/doit/ |
| University of Wisconsin-Milwaukee | http://access-ed.r2d2.uwm.edu/ |

ternational educators to consider as a framework for addressing the needs of linguistically and culturally diverse learners in addition to students with learning problems. Sonesson and Cordano (2009) affirmed the benefits of a UD approach to the academic environment in study abroad programs with the example of offering instructional materials in different formats. Indeed, universal design and accessible instruction are becoming an international dialog.

Moving the Movement Forward

In reality, the intentional development of inclusive, instructional postsecondary environments responsive to diverse learners is in its infancy. Momentum to reach a goal of universal instructional access by means of purposeful design is a laudable ideal. It represents commitment to the removal of barriers, a proactive approach that seeks solutions that are accessible to the greatest number of users. Anchored in the truism of diversity as an inherent feature of the human condition, it is an end for which to strive. However, Mace (1998), one of the originators of the concept of UD, astutely noted that “nothing can be truly universal; there will always be people who cannot use an item no matter how thoughtfully it is designed” (p. 24). Case-by-case accommodations will always be needed. Hence, the oxymoron of “universally accessible instruction.” Given the formative stage of the movement, the possibility of achieving or approximating universality of access to instructional environments is yet to be determined. A number of issues must be addressed if we are to avoid some of the pitfalls that have led to the use of invalidated interventions in the field of special education and promulgation of what later turn out to be fads. In the process of advancing a goal of universally accessible instruction, inevitable challenges are accompanied by provocative opportunities. The following recommendations are offered as levers of dialog and discussion:

- Clarify the UD framework and principles under study. When designing empirical studies to examine outcomes of UD based instructional approaches, terminology *does* make a difference. As observed by Dubin (1969), “empirical analysis has meaning only by references to a theory from which it is generated” (p. 7). The current literature, akin to earlier observations of McGuire, Scott, and Shaw (2006), is muddled. Terminology is imprecise with the interchangeable use of

UDL, UDI, UID, and UDE. Admittedly, the focus of each of these frameworks generally is on inclusive instructional environments that are responsive to diverse learners. Orr and Hammig (2009) stated, “differences in these approaches are less important than the commonalities” (p. 182). But each framework has its own set of principles and operational definitions. Researchers should define those variables under investigation by explicitly linking them to the principles and guidelines of the UD framework(s) shaping the study.

- Promote research that addresses the paucity of empirical evidence regarding the efficacy of these frameworks for promoting inclusion and learning. As underscored by Gregg (2007), evidence-based research on the effectiveness of innovations for accessing knowledge is, at best, sparse. Admittedly, the beginnings of such a base are trickling into the literature (e.g., Davies, Schelly, & Spooner, 2013; Embry & McGuire, 2011; Izzo, Murray, & Novak, 2008; Lombardi, Murray, & Dallas, 2013; Moon, Utschig, Todd, & Bozzorg, 2011; Schelly, Davies, & Spooner, 2011; Scott & Edwards, 2012; Smith, 2012; Street et al., 2012). In several recently published reviews of the literature on UD in higher education (Orr & Hammig, 2009; Rao, Ok, & Bryant, 2014; Roberts, Park, Brown, & Cook, 2011), a small number of studies that examined various outcomes were identified. The lag time between manuscript submission, acceptance, and publication in many journals undoubtedly impedes the rate of information dissemination about implementation, results, and replication efforts. Edyburn (2013) pointed out similar challenges related to innovative applications of technology, noting that innovative technologies “often reach the marketplace without evidence concerning their effectiveness” (p.11). The same could be said about UD based postsecondary instructional interventions. Yet, peer refereed journals such as *JPED* are beginning to reflect the movement from ideas to implementation, and this is progress.
- Pursue a systematic research agenda that builds the evidence base incrementally, and expand the focus of efficacy studies to include additional measures. Davies et al. (2013) and Lombardi et al. (2013) described surveys developed for their research that hold promise

for other studies. Other approaches could include classroom observation checklists, pre-post changes in student learning, and changes in requests for accommodations by students with disabilities in courses based on UD frameworks. Changes in the use of accommodations such as extended test time could be examined for courses with flexible approaches to assessment. Affective variables of faculty such as empathy and approachability are a “powerful contributor to, perhaps even determinant of, the quality of SWDs’ experiences in postsecondary education” (Orr & Hammig, p. 193), offering another focus for research on inclusive instruction.

- Consider the observations of Berliner (as cited in Odom et al., 2005) that educational researchers face complex challenges in conducting scientific research. He cautioned that “science in education is not a hard science but it is a ‘hardest to do science’” (p. 139). Although focused on developing criteria for evidence-based practices in special education, a special issue of *Exceptional Children* (2005, Volume 71(2)) addresses a range of challenges such as research designs and methodologies that researchers of the movement to promote inclusive postsecondary instruction are encouraged to consider. Another valuable resource about the process of improving learning outcomes for students through pedagogical experimentation is the Carnegie Foundation for the Advancement of Teaching, particularly its work on the scholarship of teaching and learning (Hutchings, Huber, & Ciccone, 2011). The time is prime for leadership efforts to advance an agenda addressing quality indicators of research about the efficacy of UD based initiatives in diverse contexts with diverse learners.
- Broaden the constituencies when promoting UD based instructional innovation to include faculty across multiple disciplines, administrators, instructional designers, information technology specialists, and consumers. Regardless of the framework, the goal of efforts to apply UD in postsecondary instructional environments is access, designing and implementing instruction and assessing learning in ways that include the greatest number of students possible. Disability services personnel can be agents for change by collaborating with campus leaders about accessibility and inclusive instructional environments. Benefits accrue to many consumers, and this is a marketable idea.
- Capitalize on the digital revolution. Some technologies such as the Internet and now wireless access (Wi-Fi) are ubiquitous. Today’s high school students view their educational futures grounded almost entirely around technology. They “are in fact a ‘Digital Advance Team’ illuminating the path for how to leverage emerging technologies effectively for teaching and learning” (Van Der Werf & Sabatier, 2009, p. 7). Rowland, Mariger, Seigel, and Whiting (2010) opined that “effectiveness and accessibility of electronic services and materials” will “become a key measure of excellence for institutions of higher education nationwide” (p. 16). The time is opportune to use these levers to advance the agenda of access and full inclusion. Harrison and Lanterman (2012) underscored the nuances of the dialog in our postsecondary institutions where “course design is seen as the prerogative of faculty, the experts in their academic fields” (p. 209). Their advice is a call to action: “DS providers can enter into institutional design processes as partners whose expertise in disability-related thinking can help ensure that the results are not simply functional and pleasing but JUST – just, usable, sustainable, and transformational” (p. 209).
- Explore innovative approaches to engaging faculty in course redesign and delivery. The traditional reward system on many campuses reinforces scholarly research over teaching. Designated teaching awards that highlight exemplary teaching and the commitment and resources of named benefactors can showcase faculty efforts to address classroom diversity through inclusive UD based strategies. Collaboration with campus academic units that recognize exemplary teaching could include a modest monetary incentive to be used for future innovations in course design and delivery.
- Promote inclusive instructional practices via centers for teaching and learning. Collaboration with instructional designers whose responsibilities are expanding given the growth of online education is a logical fit regardless of where they may be housed within the institution. As noted by Edyburn (2010), there is an opportunity to define UDL based interventions as a subfield within instructional

design, and that observation applies to any of the frameworks discussed herein.

- Proactively seek out faculty who are teaching in universally accessible ways and explore ideas for collaborating. Caution is warranted when offering training on UD-based approaches to teaching as assumptions can be false. While the notion of UD and its application to instruction may seem novel, it is erroneous and counterfactual to assume that college teaching is constrained to traditional models. Barr and Tagg (as cited in Fink, 2003) outlined elements of a paradigm shift where colleges and universities are “thinking less about providing instruction (the teaching paradigm) and more about producing learning (the learning paradigm)” (p.17). Rather than preaching to the faculty choir who already *are* inclusive thinkers and teachers, finding ways of *expanding* the faculty choir should become the mission.

In many ways, the movement toward universal access to instructional environments over the past three decades has been dramatic. Its trajectory has propelled it into the mainstream of conversations in higher education. Kuhn (1962) reminds us that “history suggests that the road to a firm research consensus is extraordinarily arduous” (p. 15) and that the transition of a field of study to maturity is seldom sudden. His words are replete with wisdom. The quantity and quality of the work that remains to be done in promoting the goal of universally accessible instruction as well as the leadership required in campus wide, collaborative efforts and research initiatives will temper outcomes dramatically. Full participation will validate equal access for *all* consumers. That is the opportunity.

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