From the Guest Editor: Sheryl Burgstahler, Ph.D.

Special Issue on Including Disability-Related Topics in Postsecondary Courses and Professional Development

The articles in this special issue of the *Journal of Postsecondary Education and Disability (JPED)* reflect diversity of scholarship regarding how disability-related topics can be included in the curriculum of academic courses and professional development offered by postsecondary institutions. I'm hoping that the inclusion of such content in educational offerings will increase the number of practitioners, educators, and researchers who understand how to design products and environments that are accessible to and inclusive of people with disabilities. Authors make it clear that disability services professionals can contribute to the implementation of these practices by leading them, supporting them, and promoting them on their campuses.

I was somewhat surprised to discover that the vast majority of practices reported in papers submitted for this issue employed universal design (UD) approaches to the creation of physical environments, to teaching and learning activities, and/or to technologies. Therefore, I think it would be good for me to share the history and meaning of UD as well as the Universal Design in Higher Education (UDHE) Framework that I developed. This Framework is detailed my book—*Creating inclusive Learning Opportunities in Higher Education: A Universal Design Toolkit* —that is reviewed by Margo Izzo at the end of this issue[2]. The three subsections that follow cover the history and meaning of UD, the UDHE Framework, and a description of each article included in this JPED issue.

History of UD

Many design practices stem from ableist thinking by focusing only on the average or typical user; they can ignore design considerations important for people with disabilities and those with another marginalized status. In addition, most efforts to support students with disabilities on postsecondary institutions are designed to support accommodations for individual students. The universal design (UD) approach has been promoted by educators world-wide to reduce the need for accommodations by eliminating deficits in products and environments—e.g., online and on-site components of courses, technology, services, and physical spaces—that make them inaccessible to some people. Embracing UD reduces systemic barriers and exclusionary practices in order to create more accessible and inclusive spaces, technology, instruction, and services.

Ronald Mace—a wheelchair user who was also an internationally recognized architect, commercial product designer, and educator—coined the term "universal design" to refer to the design of products, environments, and services so that they are accessible to, usable by and inclusive of all people, regardless of age, ability, and other characteristics. As presented in Figure 1, any UD practice is designed to be accessible, usable, and inclusive. Among the beneficiaries of the proactive practice of UD are individuals who have disabilities but do not disclose them, people with various learning preferences and technological expertise, those whose native language is not English, the elderly, people from different cultures, and everybody else!

Since the work of Mace, UD has been applied to a wide variety of products and environments and various definitions and principles and guidelines have emerged to address unique aspects of specific fields of application.

The UDHE Framework

Infusing UD into all aspects of higher education can reduce ableist attitudes and practices, destigmatize disability, and make all that we do more inclusive of everyone. UDHE:

- is a goal to make all offerings accessible and usable for faculty, staff, students, and visitors with diverse characteristics.
- supports diversity, equity, and inclusion goals for the design of all on-site and online products and environments found in higher education.
- considers differences in ability, as with other diversity characteristics, to be part of the normal human experience.
- is a process for developing flexible educational

[2] This book review was accepted through regular editorial process independent of the development of this special issue. It was originally requested during Dr. Wessel's editorship, and Drs. Wells and Kimball accepted it for publication. They then saw an opportunity for it to speak to the content of this special issue, and placed it here purposefully. The special issue editor and the author of the reviewed book, Dr. Sheryl Burgstahler, played no role in the solicitation, acceptance, or publication of this book review.

Figure 1

Characteristics of Any UD Practice (Source: Burgstahler, 2021, p. 2)

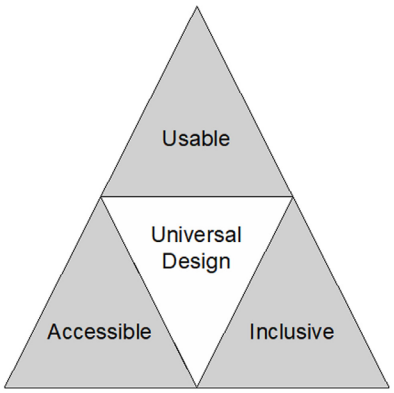


Figure 2

Aspects of the UDHE Framework (Source: Burgstahler, 2021, p. 2)

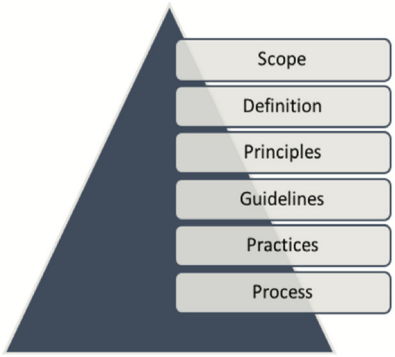
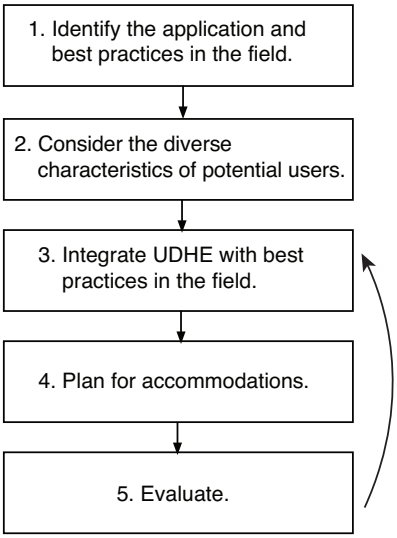


Figure 3

Process for applying UDHE (Source: Burgstahler, 2021, p. 5)



products and environments that are welcoming to, accessible to, and usable by everyone.
- improves any design by making it more inclusive.
- reduces the need for disability-related accommodations.

Aspects of the UDHE Framework that can be applied campus-wide or to any specific application in higher education (e.g., to online learning) are listed in Figure 2. Each component of the Framework is discussed below.

Scope. Define the application area to which UDHE is to be applied.

Definition. Use the general definition of UD developed by Ron Mace or one that better fits your application area and campus culture.

Principles and Guidelines. The basic UD definition, coupled with seven principles and their corresponding guidelines, have been applied extensively to physical environments, instructional practices, services, and technology. Although the general principles and guidelines can be used to guide work in any area, additional principles for important application areas have emerged as well. The ones I consider to be most relevant to postsecondary education are the Universal Design for Learning (UDL) principles and guidelines that apply to the design of curriculum and pedagogy and the four principles that support the Web Content Accessibility Guidelines (WCAG) and guide the design of technology. Applying all three sets of principles has the potential to make all offerings in higher education more accessible, usable, and inclusive.

- UD principles lead to products and environments that are equitable, are flexible, are simple and intuitive, present information that is perceptible by everyone, have a high tolerance for error, require low physical effort, and are of an appropriate size and space for approach and use.
- WCAG principles lead to IT products and the materials they create that are perceivable, operable, understandable, and robust.
- UDL principles remind educators to offer students multiple means of engagement, of representation, and of action and expression.

Practices. Develop practices underpinned by UDHE principles and guidelines. Examples of practices supported by UDHE principles are listed in Table 1.

Processes. Develop a process for applying UD principles and guidelines to applications within the scope of your application area; an example of a process is presented in Figure 3.

For more information about how UD can be applied to all aspects of postsecondary education, consult the online Center for Universal Design in Education (CUDE, n.d.) which is hosted by the Disabilities, Opportunities, Internetworking, and Technology (DO-IT, n.d.) Center at the University of Washington (UW) and primarily funded by the U.S. Department of Education and the National Science Foundation.

Articles in This Issue of JPED

Six promising practices and two research studies are presented in this issue. They are summarized in the paragraphs that follow.

In the first research article, Anastasia Angelopoulou, Rania Hodhod, Kristin Lilly, and Ann Newland point out that computing courses do not often include content about designing and developing accessible and inclusive applications. In their study, students learned to design, develop, and evaluate accessible applications, but also reported that they would consider designing and developing accessible and inclusive applications in their future work. In the other research study, Michele L. Thornton, Rebecca W. Mushtare, Laura J. Harris, and Kathleen M. Percival described how their campus Workgroup on Accessibility Practices created a motivating 10-day accessibility challenge, implemented it on campus, and evaluated its effectiveness using a mixed methods research design. They conclude that challenge-type interventions can reach diverse constituencies, build greater familiarity and utilization of existing resources, and increase participant confidence around their ability to contribute to a culture of accessibility and inclusion.

One article shares how the application of universal design can improve physical access at colleges and universities. Lauren Copeland-Glenn and Christopher Lanterman, Northern, created the Accessibility Expedition, in which disabled individuals and individuals knowledgeable of principles for accessible and universal design engage participants in an exploration of campus spaces followed by a debriefing session to discuss barriers to equitable participation, evidence of accessible or universal design practices, and steps that can be taken to make a more accessible campus.

The other five practice articles share specific applications of accessible, inclusive, and universal design to instructional practices. The authors—Erin Leif, Elizabeth Knight, Jessica Buhne, Elicia Ford, Alison Casey, Annie Carney, Jennifer Cousins, Stuart Dinmore, Andrew Downie, Mary Dracup, Jane Goodfellow, Meredith Jackson, Noor Jwad, Dagmar Kminiak, Darlene McLennan, Mary-Ann O'Donovan, Jessica Seage, Mirela Suciu, and David Swayn—of one article report on a practice that was designed to

Table 1

Examples of UDHE Practices (Source: Burgstahler, 2021, p. 4)

UDHE Principle	Example of UDHE Practices
UD 1. Equitable use	Career services. Job postings are in formats accessible to people with a great variety of abilities, disabilities, ages, racial/ethnic backgrounds, and technologies.
UD 2. Flexibility in use	Campus museum. An exhibit design allows a visitor to choose to read or listen to descriptions of the contents of display cases.
UD 3. Simple and intuitive	Assessment. Testing is conducted in a predictable, straightforward manner.
UD 4. Perceptible information	Dormitory. An emergency alarm system has visual, aural, and kinesthetic characteristics.
UD 5. Tolerance for error	Instructional software. An application provides guidance when a student makes an inappropriate selection.
UD 6. Low physical effort	Curriculum. Software includes on-screen control buttons that are large enough for students with limited fine motor skills to select.
UD 7. Size and space for approach and use	Science lab. An adjustable table and flexible work area is usable by students who are right- or left-handed and have a wide range of physical characteristics.
UDL 1. Multiple means of engagement	Courses. Multiple examples ensure relevance to a diverse student group.
UDL 2. Multiple means of representation	Promote services. Multiple forms of accessibly designed media are used to communicate services provided.
UDL3. Multiple means of action and expression	Course project. An assigned project optimizes individual choice and autonomy.
WCAG 1. Perceivable	Student service website. A person who is blind and using a screen reader can access the content in images because text descriptions are provided.
WCAG 2. Operable	Learning management system (LMS). A person who cannot operate a mouse can navigate all content and operate all functions by using a keyboard (or device that emulates a keyboard) alone.
WCAG 3. Understandable	Instructional materials. Definitions are provided for unusual words, phrases, idioms, and abbreviations.
WCAG 4. Robust	Application forms. Electronic forms can be completed using a wide range of devices, including assistive technologies.

increase knowledge and skills of Australian educators to help them avoid erecting barriers by applying UD principles. They describe how they brought together a diverse a team of educators, learning designers, accessibility advocates, and people with disabilities from multiple institutions collaborated to co-create an accessible eLearning program to build workforce knowledge and skill in making courses more inclusive.

Brian W. Stone and Deana Brown focus more narrowly on the need for specialized instructional products, in this case the need for 3D educational resources for students who are blind, while simultaneously teaching students about accessibility and universal design. They designed and taught the experimental course in which students learned about disability in general and blindness in particular; explored technology used by people who are blind; heard from many blind individuals; studied UD; and designed 3D printable educational tactile models in collaboration with blind community members. This practice can serve as a model for those who wish to teach students from any major about disability and UD as they meaningfully contribute to addressing real educational barriers.

Two articles focus specifically on how to make more online learning courses accessible to and inclusive of students with disabilities. The work of authors Mohan Yang, Victoria Lowell, Yishi Long, and Tadd Farmer was motivated by the fact that online learning environments can present especially challenging circumstances for disabled students despite the advantages they could potentially bring. They present the design and development of three self-paced e-learning modules that teach instructional design students to create accessible online learning content and share lessons learned. Christa Miller describes two practices and shares their results in making accessibility concepts a natural part of training in online tools and teaching at a postsecondary institution. One practice integrated accessibility training within existing professional development requirements and the other used a multi-session accessibility training addressing knowledge gaps.

A final brief shows how postsecondary education can have an impact on making precollege instruction more inclusive. While more universities are including IT accessibility in their computer science programs for undergraduate and graduate students, there is little training in accessibility available for K-12 teachers. In their article, Rachel F. Adler and Devorah Kletenik introduce an activity they created and tested that can be used as part of the curriculum in courses for K-12 teachers who are learning to teach computer science content.

It is my pleasure to share this collection of articles with JPED readers. Collectively, the practices they support can contribute to a paradigm shift from design for the typical person to design for everyone.

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About the Guest Editor

Dr. Sheryl Burgstahler founded and continues to direct Accessible Technology Services—which includes the DO-IT (Disabilities, Opportunities, Internetworking, and Technology) Center and the IT Accessibility Team (ITAT)—at the University of Washington. These groups (1) support the success of students with disabilities in postsecondary education and careers and (2) promote the universal design of learning opportunities. She teaches online an hybrid courses on disability studies. Her latest book is *Creating Inclusive Learning Opportunities in Higher Education: A Universal Design Toolkit*.

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