UNIVERSAL DESIGN in Higher Education

PROMISING PRACTICES

1 Introduction to Universal Design in Higher Education

Designing any product or environment involves the consideration of many factors, including aesthetics, engineering options, environmental issues, safety concerns, industry standards, and cost. Often the design is created for the "average" user. In contrast, "universal design (UD)" is, according to The Center for Universal Design, "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design" (*www.design.ncsu.edu/cud/about_ud/about_ud.htm*).

When UD principles are applied in a postsecondary institution, educational products and environments meet the needs of potential students with a wide variety of characteristics. Disability is just one of many characteristics that a student might possess. For example, one student could be Hispanic, six feet tall, male, thirty years old, an excellent reader, primarily a visual learner, and deaf. UD requires consideration of all characteristics of potential users, including abilities and disabilities, when developing a course or service.

UD can be applied to any product or environment. For example, a typical service counter in a career services office is not accessible to everyone, including students who are short in stature, use wheelchairs, and cannot stand for extended periods of time. Applying UD principles might result in the design of a counter that has multiple heights: the standard height designed for individuals within the typical range of height, who use the counter while standing up; and a shorter height for those who are shorter than average, use a wheelchair for mobility, or prefer to interact with service staff from a seated position.

Making a product or an environment accessible to people with disabilities often benefits others. For example, while automatic door openers benefit students, faculty, and staff using walkers and wheelchairs, they also benefit people carrying books and holding babies, as well as elderly citizens. Sidewalk curb cuts, designed to make sidewalks and streets accessible to those using wheelchairs, are also used by kids on skateboards, parents with baby strollers, and delivery staff with rolling carts. When video displays in airports and restaurants are captioned, they benefit people who cannot hear the audio because of a noisy environment as well as those who are deaf.

UD is a goal that puts a high value on both diversity and inclusiveness. It is also a process.

THE PROCESS OF UNIVERSAL DESIGN

The process of UD requires consideration of the application as a whole and its subcomponents. The following list suggests a process that can be used to apply UD in a postsecondary setting:

1. *Identify the application*. Specify the product or environment to which you wish to apply universal design.
2. *Define the universe*. Describe the overall population (e.g., users of service), and then consider their potential diverse characteristics (e.g., gender; age; ethnicity and race; native language; learning style; and ability to see, hear, manipulate objects, read, and communicate).
3. *Involve consumers*. Consider and involve people with diverse characteristics in all phases of the development, implementation, and evaluation of the application. Also gain perspectives through diversity programs, such as the campus disability services office.
4. *Adopt guidelines or standards*. Create or select existing universal design guidelines or standards. Integrate them with other best practices within the field of the application.
5. *Apply guidelines or standards*. In concert with best practices, apply universal design to the overall design of the application, its subcomponents, and all ongoing operations (e.g., procurement processes, staff training) to maximize the benefit of the application to individuals with the wide variety of characteristics.
6. *Plan for accommodations*. Develop processes to address accommodation requests (e.g., purchase of assistive technology, arrangement for sign language interpreters) from individuals for whom the design of the application does not automatically provide access.
7. *Train and support*. Tailor and deliver ongoing training and support to stakeholders (e.g., instructors, computer support staff, procurement officers, volunteers). Share institutional goals with respect to diversity, inclusion, and practices for ensuring welcoming, accessible, and inclusive experiences for everyone.
8. *Evaluate*. Include universal design measures in periodic evaluations of the application; evaluate the application with a diverse group of users, and make modifications based on feedback. Provide ways to collect input from users (e.g., online, in print, through communications with staff).

UNIVERSAL DESIGN PRINCIPLES

At The Center for Universal Design (CUD) at North Carolina State University, a group of architects, product designers, engineers, and environmental design researchers established seven principles of UD to provide guidance in the design of products and environments. Following are the CUD principles of UD, each are paired with an example of its application:

1. *Equitable use*. The design is useful and marketable to people with diverse abilities. A website that is designed so that it is accessible to everyone, including people who are blind, employs this principle.
2. *Flexibility in use*. The design accommodates a wide range of individual preferences and abilities. A

museum that allows a visitor to choose to read or listen to a description of the contents of a display case employs this principle.

3. *Simple and intuitive*. Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level. Science lab equipment with control buttons that are clear and intuitive employs this principle.
4. *Perceptible information*. The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities. Video captioning employs this principle.
5. *Tolerance for error.* The design minimizes hazards and the adverse consequences of accidental or unintended actions. An educational software program that provides guidance when the user makes an inappropriate selection employs this principle.
6. *Low physical effort*. The design can be used efficiently and comfortably, and with a minimum of fatigue. Doors that open automatically employ this principle.
7. *Size and space for approach and use*. The design provides appropriate size and space for approach, reach, manipulation, and use, regardless of the user's body size, posture, or mobility. A science lab with adjustable tables employs this principle.

OVERVIEW OF APPLICATIONS AND EXAMPLES OF UD

Applications and examples of UD are given on the following two pages. A reproducable PDF file with this content can be found at *www.uw.edu/doit/CUDE/.*

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