IMPLEMENTING UNIVERSAL INSTRUCTIONAL DESIGN IN COLLEGE COURSES

Universal Instructional Design is the design of instructional materials and activities that allow learning goals to be achieved by individuals with wide differences in their abilities to see, hear, speak, move, read, write, understand English, attend, organize, engage, and remember. While allowing students with disabilities to engage in a course with few special accommodations, the flexibility of courses using these principles also helps other students learn the course material in ways most appropriate to their unique learning styles and preferences. UID is achieved by means of flexible curricular materials and activities that provide alternatives for students with disparities in learning styles, abilities and backgrounds. UID acknowledges differences among students and uses them to strengthen the learning process.

- Focuses on accessibility as an integral component of instructional planning.
- Includes flexibility in the course's overall instructional design, so that fewer accommodations need to be made for individual students.
- Benefits students with many different types of learning styles and needs.

As defined by CAST (Center for Applied Special Technology), the basic premise of universal instructional design is for curriculum to include alternatives to ensure accessibility to students with differing backgrounds, learning styles, abilities and disabilities. The "universal" in universal design does not imply that one size fits all; instead, it stresses the need for flexible, customizable content, assignments and activities.

Essential Qualities of Universal Instructional Design

- To provide multiple means of **Representation**
- To provide multiple means of **Engagement**
- To provide multiple means of **Expression**

Multiple Means of Representation:

- Overhead transparencies
- Blackboard
- Simulations
- Models
- Clear and complete syllabus
- Providing assignments in written form & posting these on a course web site
- Accessible electronic materials for students with perceptual impairments
- Lecture outlines or notes distributed in class and/or posted on a course web site
- Study guides
- Summary of major concepts

- Scaffolding for learning and generalization

Multiple Means of Engagement:
- Small group discussions, whole-class discussions, lectures, etc.
- A variety of homework assignments: readings, exercises, group projects, tutorials, web searches, etc.
- Teaching of explicit strategies to learn the material

Multiple Means of Expression:
- A variety of graded exercises (papers, exams, homework, presentations)
- Multiple formats on examinations (essay, short answer, oral, etc.)
- Choices in graded exercises (e.g., a final exam or final paper or class presentation)
- Sufficient time on examinations
- Use of word processing, spell check and grammar check

Principles for Applying Universal Instructional Design
- Determine the essential components of the course
- Provide clear expectations and feedback
- Incorporate natural supports for learning: clear statement of course objectives, opportunities to ask questions, frequent exercises to assess understanding
- Use multimodal instructional methods
- Provide for a variety of ways of demonstrating knowledge
- Use technology to enhance learning
- Encourage faculty-student contact

How Faculty Have Applied Universal Instructional Design in their Classes
- A sociology professor revised her syllabus to specify the objectives more clearly, and added three short papers in addition to the midterm and final exam. This change helps students structure the material in the course and provides more diversity in the types of work that affect the final grade in the course.
- A math faculty member posted his overhead visuals on his course web site so that students could use them for reference and review. He also began to deliver his lectures more carefully, by replacing general terms like "this" or "that" with more specific descriptions, by pausing where appropriate, and by making eye contact with his students.
- A composition faculty member began audio taping his class so students could review class discussion and the professor's instructions about completing assignments.
- A foreign language professor uses puppet shows, role plays, velcro cards, and searches of computer web sites in the second language to make the instruction as mufti-modal as possible.
- A psychology professor allowed students the choice of writing the final exam as a take-home or a 3-hour in-class final.
- A geology professor developed computer animation modules to illustrate some of the key

concepts in a course on physical hydrology. These are shown in class and available on-line as well.

- A computer science professor started to begin each class with a forecast of the key concepts to be discussed that day and why they are important in the course material (after students complained that they had no context for his lectures).

- An introductory physics course administers the midterm exams in the evening, allowing all students up to 2 ? hours for a one-hour exam.

- A biology professor introduces new topics by asking all students to write a short essay on the topic, in class. Some students are better writers than talkers, and the professor finds that this practice leads to more universal participation in the subsequent class discussions.

- Another biology professor began using two overhead projectors in his lectures so he can leave each slide on the screen longer.

- Professors in a number of disciplines have found that on-line chat rooms or asynchronous bulletin boards allow students who are shy about speaking in class to participate actively in on-line discussions.

- Professors who rely on course web sites can check them with "Bobby" to ensure that they are accessible for students with visual impairments.

A Few Useful Web Sites

- Ivy Access Initiative Project on Universal Instructional Design: http://www.Brown.edu/uid

- Center for Applied Special Technology (CAST): http://www.cast.org

- Guidelines for creating accessible web pages, from Brown's Institute for Elementary and Secondary Education: http://www.brown.edu/Departments/IESE/resources/accessible.html

- Cognitive Diversity: Teaching to Variation in Learning. This on-line workshop helps instructors gain a greater sensitivity to and understanding of the central role of cognition in student learning: http://ww.brown.edu/sheridan_center/workshops/cognition_wkshop.html

- The Webxact page (formerly called "Bobby") that checks your web site for accessibility to people with visual impairments: http://webxact.watchfire.com

- Brown University Disability Support Services; this web site contains guidelines for documentation of various disabilities, information on registering and obtaining services from DSS, and a faculty handbook for helping students with disabilities succeed in college classes: http://www.brown.edu/dss

- Ragged Edge Online, Issue 5 (September, 2001): "Distance Learning – boon or bane?" by Art Blaser: http://www.raggededgemagazine.com/0901/0901ft1.htm

- Application of Universal Instructional Design to ESL teaching, by Kregg Strehorn: http://iteslj.org/Techniques/Strehorn-UID.html

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