This paper describes the reflections of the university professors in eight colleges at the University of Nevada, Las Vegas, who were pioneers in integrating assistive technology and related content into their courses and who continue to provide leadership in curricular change. Professors from the colleges of fine and performing arts, business, hotel management, education, architecture, engineering, health sciences, and communication participated in the survey. Topics addressed by the professors include choice of content which best fits with various fields of study, the response of students, the benefits identified, the challenges faced in including the content in their courses, the changes seen in appropriate content over time, the inclusion or omission of the content in their professional literature, and the vision for this content in the future. Results of the survey indicate that each of the professors involved in the Assistive Technology Curriculum Change Project experienced it in a slightly different manner. All of the professors, however, readily acknowledge the change in their own thinking about the world into which they are sending their students and the needs and demands of the public their graduates will serve. (CR)
"Colleges do help to shape society just as society shapes the academic plans developed by colleges"

(Stark & Lattuca, 1997, p. 44).

Over the past seven years, content on the Americans with Disabilities Act, assistive technology, and disability issues has been integrated into over 85 courses in eight colleges at the University of Nevada, Las Vegas reaching over 6500 students during the academic year. Representatives from eight colleges served on a steering committee to lead the change efforts and were often the first to incorporate the new content into their courses. Babbitt (1996) described the model for systems change which served as a framework for this project. This paper will describe the reflections of the university professors who were pioneers in integrating assistive technology and related content into their courses and who continue to provide leadership in curricular change.

The goal of the UNLV Assistive Technology Curriculum Project is to prepare the next generation of college graduates to design and to function in an accessible world. Written curriculum modules and media have been developed which support this goal. Those modules have been made available to faculty in eight colleges on campus and to many others in higher education throughout the United States and the world.

Despite the utility of printed curricula, the main responsibility for decisions about what content to include and the best way to deliver that content rests with individual faculty in higher education. Stark and Lattuca (1997) remind us that "influences on course-level planning are primarily internal to the academic program and often internal to the individual faculty planner" (p.118).

This paper will share the reflections of professors on topics including: choice of content which best fits with various fields of study, the response of students, the benefits identified, the challenges faced in including the content in their course, the changes seen in appropriate content over time, the inclusion or omission of the content in their professional literature, and the vision for this content for the future.

In the college of Fine and Performing Arts one course in which change has occurred is the Gallery Management course. New content focuses on designing accessible exhibits that can be experienced by many individuals including persons with disabilities. Early curricular changes focused on insuring physical access to the art gallery, displaying artwork to be enjoyed at standing or seated eye-levels, providing traffic flow guides to low vision visitors, and developing some hands-on displays for blind visitors. It is interesting that over time students have raised issues of how to create an environment that is also effective for cognitively and emotionally challenged individuals. Students come away from the
course with knowledge of a set of reasonable strategies that work across exhibits, a list of resources for additional ideas, and the realization that each exhibit will require their own creativity in enhancing its accessibility.

Both benefits and costs are part of the included curriculum in the College of Business. Students learn about the positive worker qualities of employees with disabilities which include low absenteeism and high productivity. They also learn about employment practices that are consistent with the Americans with Disabilities Act and through case studies learn about those who have successfully responded to customers with disabilities. Students also learn about business opportunities that are available to those who understand niche markets. On the other hand, in a college that prepares students to understand the bottom line, it is not surprising that issues of risk management are addressed in depth. What does it cost to make accommodations for employees with disabilities and what are the associated costs in health care and worker's compensation? What are the legal and safety issues that may arise? It will take a followup study of graduates to determine how business students perceive the cost/benefit ratio after they have completed their program.

The Hotel College operates from a basic philosophy of providing a quality experience for all customers and so the content related to individuals with disabilities was readily incorporated into their curriculum. Using major hotel services as the guiding framework, professors examined issues of how the property, the front desk, rooms, food services, entertainment services and business services can be made accessible and responsive to individuals with disabilities. Early curriculum content focused on accessibility issues such as providing accessible rooms, creating evacuation plans, and providing menus in alternative formats. But curriculum quickly moved to include quality of experience issues. For example, following the passage of the ADA many hotels put all of their accessible rooms on the first floor. It soon became apparent that not all individuals with disabilities wanted to stay on the first floor - they wanted the same choice in selecting floors and views as other patrons. In their leisure property design course, hotel students are taught to distribute accessible rooms throughout the hotel and to acquire some portable technologies so that the equipment can easily be moved from room to room. Restaurant waiters are trained to ask patrons with visual disabilities how they would prefer to learn about the menu items - via a Braille menu, via audio tape, via a question and answer routine, or via waiter suggestions. Students graduate knowing a range of accommodations that should be available in a quality establishment but with the knowledge that the best determiner of the appropriate accommodation to achieve a quality leisure experience are the customers themselves.

Students within the College of Education have been learning about individual differences and the requirements to provide a free appropriate education to students with disabilities for many years. For many education students, however, knowledge of assistive technologies which are available to assist students in learning is new information. Various aspects of assistive technology information is included in a range of required courses including Educational Psychology, Computers in Education, and Teaching Students with Disabilities in the General Education Classroom. Students are given an overview of the assistive technologies available in each of the disability areas with particular emphasis on those technologies that provide access to or support learning. Pretest/posttest data has been collected from Educational Psychology students for many years and it shows a dramatic increase in knowledge through a single lecture on the topic. Students' knowledge is increased in the computers in education class where various assistive technologies are demonstrated or used. Advanced courses in augmentative communication, for example, are available at the graduate level. While beginning teachers are not expected to be experts in the use of assistive technologies, they are expected to recognize that a student might benefit from assistive technology and make the appropriate referral for assessment. In practicums and student teaching, students are also expected to be open to learning about and facilitating the use of assistive technology by students who need it to access school and learning.

The School of Architecture was in the midst of designing a new architecture building at the time the grant began. Building access and conflicting building code issues were often brought to the attention of steering committee members. The errors and subsequent corrections in that building's design documented the obvious need for curricular change in architectural training to meet the needs of individuals with disabilities. An accessible entrance had been designed but it was located at the far end of the building and not responsive to the natural movement of students between buildings on campus.
The erected building includes a spiral staircase which could easily decapitate an unsuspecting patron with visual disabilities or an otherwise preoccupied student. The accessible entrance was moved and a protective barrier has subsequently been put in place around the spiral staircase. It is hoped that with the curricular changes that have been incorporated in architecture courses, these basic errors in design will not be repeated by future architecture graduates.

Despite its potential, change within the curriculum of the College of Engineering has been harder to achieve. As the Technology and Persons with Disabilities Conference so clearly demonstrates, the computer science and engineering knowledge base related to assistive technology has exploded over the past ten years. Many attempts have been made in the College of Engineering to persuade faculty to expand content in computer programming to include such issues as designing accessible web pages and application software using universal design principles. Sample curricular modules have been developed and shared. Electrical and mechanical engineering faculty have been asked to explore issues of universal design in both practical courses and engineering and society seminars. In most cases, faculty have acknowledged the worthiness of the content but have said there is already too much content in the curriculum. A few faculty have included some assistive technology work in their own research agendas but the vast majority of engineering students have not been impacted by this work. Students have been made aware of financial support for senior projects which incorporate assistive technology but the response has been low. The failure to make significant changes in curricula that reaches all engineering students has been a frustrating experience for all involved.

The Health Sciences early on saw themselves as already incorporating knowledge of assistive technology in training for nurses and health administrators. Hence, curricular changes have focused on training personnel to respond more appropriately and effectively to individuals with disabilities when the disability is not the focus of the health treatment. For example, radiologists were taught modified procedures for doing mammograms for individuals in a wheel chair. Issues of effective communication with patients with hearing or speech impairments received greater focus as well. Students in health care administration programs also received training in employment of individuals with disabilities in health care facilities. Seminars and practicum experiences give health care students many opportunities to practice what they learn.

The Communication School within the College of Urban Affairs has been particularly responsive to incorporating appropriate information into their media coursework. Through working with projects associated with the grant such as producing two videos, traveling to schools and taping numerous individuals with disabilities, and editing videos, students have expanded their knowledge of how to present disability and assistive technology issues through media. Students have also been exposed to captioning and video description processes. A followup study of this group of students would be particularly interesting as they move into the world of work.

While the intent of the Curriculum Project has always been to bring about curricular change, there has been a very positive side benefit as described by the Director of the Disability Resource Center who has served on the steering committee since the grant's inception. The grant has raised the consciousness of faculty regarding individuals with disabilities and available assistive technologies which can help them in living, learning, and working. Students with disabilities on campus have benefited by this increased faculty awareness. In teaching students about the ADA, faculty have also had to become aware of their own responsibilities in relationship to it. In learning about the purposes of available assistive technologies, faculty have grown in their knowledge of the possible impact of these technologies on learning. The end result has been that issues related to reasonable class accommodations for students with disabilities have been more readily resolved given the increased faculty knowledge base and increased realization that the request for accommodation may, indeed, be reasonable.

Fullan (1993) reminds us of the complexity of the change process. Each professor involved in the UNLV Assistive Technology Curriculum Change Project experienced it in a slightly different manner. Importantly, however, faculty who have been involved in the project can readily describe the changes that have taken place in their curriculums over the last seven years and the changing knowledge base of their students. Furthermore, faculty readily acknowledge the change in their own thinking about the world into which they are sending their students and the needs and demands of the public their graduates...
REFERENCES


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