

Access to computers for disabled individuals is more than just a good idea. Soon, it will be mandated by law. Helping colleges, universities, business and the research community comply with these new regulations will provide a variety of dynamic and productive challenges in the years to come.

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Introduction

As new technologies are introduced into the marketplace and become more commonplace in the post-secondary environment, the challenge to accommodate disabled students is presented to colleges and universities on a daily basis. Many new adapted computer technologies clearly do not place an undue financial burden or hardship on an institution. The issue, then, is how to quickly and easily make it possible for students with disabilities to take advantage of these new technologies.

Not only is the college or university committed to providing a comprehensive education to all matriculating students, but numerous federal and state laws exist which mandate that institutions provide equal access to educational opportunities for all students. Civil rights legislation of the 1960's required that universities adopt affirmative action policies for their students and employees to avoid discrimination on the basis of age, race or sex.

Section 504 of the Federal Rehabilitation Act of 1973

Section **504** of the Rehabilitation Act of 1973 states:

No otherwise qualified handicapped individual in the United States ... shall, solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance [29 U.S.C. sec. 794, as amended by Section 111(a) of the Rehabilitation Act Amendments of 1974].

9.2 In general, this act prohibits discrimination on the basis of handicap in federally funded programs and activities. It also applies to institutions receiving any sources of federal funding. Further, Section 101.42 of the implementing regulations, 34 C.F.R. Part 105, extends to nondiscrimination on the basis of handicap in admissions and recruitment. This piece of landmark legislation describes "reasonable accommodation" as the method for ensuring the nondiscrimination of disabled persons. Across the country, institutions have taken broad steps to make education more accessible to students with disabilities. The decade of the 1970's saw great emphasis on the removal of architectural barriers on campuses so that students in wheelchairs could get into classrooms. Elevators were built so that students with physical disabilities could access classrooms on all floors of campus buildings, not only on the first floor.

Following the Architectural Barriers Act of 1968, states formed Architectural Review Boards with extensive requirements for construction of buildings and pathways that are built to codes which require accommodating the disabled. Reflecting on what was built in the past, how could our planning have been so

shortsighted as to have constructed engineering centers or humanities laboratories from which students with physical disabilities were barred by architectural design?

Additionally, the United States Department of Education set forth regulations on Section 504 (34 C.F.R. Part 104), establishing standards for institutions of higher education to follow in meeting the needs of disabled students and employees. In fact, the Department further stated that "different or special treatment of handicapped persons, because of their handicaps, may be necessary in a number of contexts in order to ensure equal opportunity." [42 Fed. Reg. 22676 (May 4, 1977)].

Adapted computer technology, based primarily in software adaptations, permits full access to commercially available and professor-authored software programs, individual microcomputers, networks and mainframes. It is reasonable to expect that institutions will take proactive steps to accommodate the computer access needs of students with disabilities. There can and most certainly will be legal consequences in not doing so as equal access and equal opportunity continue as guiding principles in college admissions and academic participation.

9.3

Supreme Court Opinions

As a case in point, in the 1979 Supreme Court case, *Southeastern Community College v. Davis*, our highest court recognized the emerging needs of the disabled in terms of advances in technology:

We do not suggest that the line between a lawful refusal to extend affirmative action and illegal discrimination

against handicapped persons will always be clear. It is possible to envision situations where an insistence on continuing past requirements and practices might arbitrarily deprive genuinely qualified handicapped persons of the opportunity to participate in a covered program. Technological advances can be expected to enhance opportunities to rehabilitate the handicapped or otherwise to qualify them for some useful employment. Such advances also may enable attainment of these goals without imposing undue financial and administrative burdens upon a state. Thus, situations may arise where a refusal to modify an existing program might become unreasonable and discriminatory. Identification of those instances where a refusal to accommodate the needs of a disabled person amounts to discrimination against the handicapped continues to be an important responsibility of HEW *Southeastern Community College v. Davis* [442 U.S. 397 (1979) at 412-413].

9.4

Although experts in adapted computer technology and disability continue to find that colleges and universities act in good faith to provide equal opportunities for students with disabilities, more often than not, academic programs are developed or revised without much thought as to how disabled students might be accommodated. For example, a large Eastern university received a major federal grant to design a word processing system which was to be used by a multi-state consortium of colleges and universities to teach freshman composition. The primary design concept of this word processing system revolved around the use of high resolution graphics text displays. Unfortunately, these kinds of displays cannot be translated to speech output for blind users.

This system when completed will be entirely inaccessible to blind students attending any of the col-

leges or universities participating in the project. What will most probably occur for the blind student? The university will pay a reader to sit at the terminal and describe the contents of the display. What could have happened? The design team for this project, including its engineers, might have used another type of architecture so that the visual displays could have been read by a voice synthesizer and heard by the blind student using earphones in the computer lab.

Remembering to "think before doing," the Court recognized that, while efforts are made in good faith, the net result may have exclusionary consequences, necessitating that systems and programs be redone to stop any possible invidious effects on persons with disabilities. In *Alexander v. Choate*, the Supreme Court states:

Discrimination against the handicapped was perceived by Congress to be most often the product not of invidious animus, but rather of thoughtlessness and indifference-of benign neglect ... For example, elimination of architectural barriers was one of the central aims of the Act, yet such barriers were clearly not erected with the aim or intent of excluding the handicapped. *Alexander v. Choate*, [105 S.Ct. 712 (1985) at 718-19].

9.5

Fortunately, new legislation is being put forward which will obligate institutions receiving federal support to provide technological systems which the disabled will be able to access as easily as the able-bodied. Universities which receive federal grants, contracts or gifts from agencies such as the National Science Foundation, U.S. Department of Education or Department of Defense will have to demonstrate how they plan to adapt for disabled students and disabled employees.

Section 508 Amendments

Specifically in regard to adapted computer access, the 1986 amendments to the Federal Rehabilitation Act of 1973 put forth new language which will have a dramatic effect on the future of computer access for hundreds of thousands of disabled persons. Broadly referred to as "electronic curb cut legislation," when fully implemented, the impact of these new access requirements will be of enormous benefit. The language in its entirety reads:

Title V. Miscellaneous

A new section (508) Electronic Equipment Accessibility has been added.

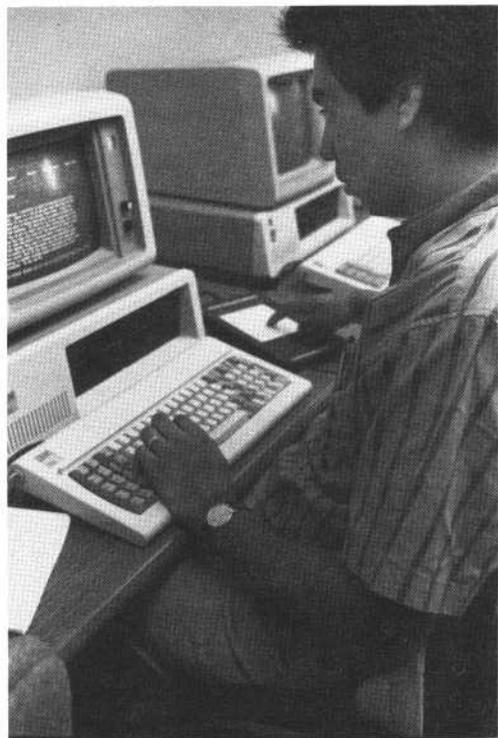
Sec. 508.(a) (1) The Secretary through the National Institute on Disability and Rehabilitation Research and The Administrator of the General Services, in consultation with the electronics industry, shall develop and establish guidelines for electronic office equipment with or without special peripherals.

(2) The guidelines established pursuant to paragraph (1) shall be applicable with respect to electronic equipment, whether purchased or leased.

(3) The initial guidelines shall be established not later than October 1, 1987, and shall be periodically revised as technologies advance or change.

(b) Beginning after September 30, 1988, the Administrator of General Services shall adopt guidelines for electronic accessibility established under subsection (a) for Federal procurement of electronic equipment. Each agency shall comply with the guidelines adopted under this subsection.

(c) For the purpose of this section, the term special peripherals means a special needs aid that provides access to electronic equipment that is otherwise inaccessible to a handicapped individual.



The committee, formed under the auspices of the National Institute of Handicapped Research to establish access guidelines for electronic office equipment is called The White House Committee for Equal Access to Standard Computers and Information Systems.

If they have not already done so, administrators in institutions of higher education must become familiar with this language and consider how adapted computer technologies can be implemented for students and employees with disabilities to meet these requirements as quickly as possible.

Meeting the New Computer Access Requirements

9.8

The politics of access remains an important consideration, since old ways of doing things will require change. For example, faculty in computer science who may never have had the opportunity to teach a disabled student might, of necessity, be asked to implement these new technologies in the classroom as part of the instructional methodology. Of what benefit? That the college or university can offer all students—including students with disabilities—equal access to its educational programs.

Colleges and universities must also pay attention to accessibility requirements in incorporating new software applications which they may be interested in purchasing for student use. For example, computerized college placement and diagnostic tests will be increasingly available for use in admitting and placing students in college courses. Institutions must ask questions now as to how disabled students will be accommodated if they adopt these new systems.

Looking ahead to the year 2000, it is incumbent that we consider reasonable accommodation as a regular part of institutional planning. Within the domain of adapted computer technology, college faculty and administrators must respond to the microcomputer onslaught in the college classroom and campus environment through informed decision-making.

Simple steps can be taken to ensure that students with disabilities can use microcomputers and mainframes as an ongoing part of their college education. In many cases, accommodation is simple. What can institutions do?

1. First, in planning microcomputer and mainframe use at an institution, consider that an ongoing portion of students will need to be reasonably accommodated due to visual, physical, hearing or learning disabilities. Design an accessible system.

2. Next, keep abreast of software packages that permit reasonable accommodation for the disabled *and* allow nondisabled persons access as well.

3. Third, it is critical that institutions pay particular attention to how public information is made available to the campus and at-large community and that, wherever public information is available, the institution ensures that persons with disabilities have access to this information as equal members of the college community.

For example, if students are required as part of the college curriculum to access LEXIS, Dow Jones or ERIC databases, questions such as "how will a blind student use this terminal" or "is the library's computer which contains ERIC accessible to a student in a wheelchair" must be answered. If all students at an institution are given a microcomputer or are required to use ones available in the campus center, student lounge or dormitory, how will disabled students be accom-

modated? Adapted computer technologies provide answers to these questions and enable institutions to provide the very best through hardware and software accommodations that are becoming increasingly commonplace.

4. Finally, keep abreast of new federal and state laws and higher education policy studies which focus on using these new computer technologies and the requirements of students with disabilities. These emerging new technologies must relate directly to the goals and objectives of affirmative action, Section 504, and the U.S. Department of Education's institutional compliance requirements in regard to program accessibility and the provision of auxiliary aids to students with disabilities.

9.10

Conclusion

Higher education leaders should expect that standards will be developed for adapted computer technologies (sec 508). Clear criteria, use requirements and guidelines, and access issues will comprise these standards. In short order, these standards will become law or administrative rulings governing institutions of higher education. For example, in the California Legislature, a bill was introduced by Assemblyman Tom Hayden in 1986 promoting ergonomic requirements for office environments which use computers. Applying this kind of legislation to the needs of disabled persons, it is likely that institutions which receive federal funds and which require computer access for all students will need to prepare for such standards as soon as possible.

It is important that we remain cognizant of lessons past. While buses have been available to carry passengers across town for the past fifty years, it is only

within the last decade that these same buses have become accessible to persons with disabilities. As computers have, in short order, come to pervade every aspect of our environment, let's ensure that persons with disabilities can access them as easily as the rest of us so that those who choose to attend an institution of higher education will be able to take advantage of each and every aspect of what colleges and universities have to offer.

