Computer Technologies & Women with Disabilities: Is There Common Ground?

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Computer and information technologies have the potential both to enhance the lives of students with disabilities as well as to deny equality of access to higher education. We have seen both in our capacities as professor, disability activist, and student, respectively. But what is the predominant trend? What influences whether new computer and information technologies are enabling or disabling postsecondary students with disabilities?

Another question that interests us is, "What is the impact of computer technologies on female students with disabilities?" A great deal of attention has been paid to the topic of "computer technologies and women" (nondisabled, of course).

The general consensus is that women are less interested in using computers than men. However, some women's organisations are disputing the old myth and preparing instruments to assist women in developing such skills (c.f., Ellen Balka's work on behalf of the Canadian Research Institute for the Advancement of Women, 1997).

In her article "Why are there so few female computer scientists?" Ellen Spertus (1991) described how cultural stereotypes consistently discourage women from entering the computer technology field, thereby causing gender inequity. Subsequently, the stereotypes maintain the view that women are less technologically able than men.

What does this mean for women with disabilities in higher education? Do they conform to the stereotypes imposed on other women? Or are they, as a group, different with respect to the use of technologies?

After scouring the literature, we realized that there were no ready answers to any of these questions. Anecdotes, case studies, "our institution's experience" and other non-systematic bits of information were all that we could locate. Policies in this important, rapidly evolving area should not be based on such flimsy "evidence." So we set out to conduct research to find answers to questions such as those posed above. Although the research was not designed from a woman-centered perspective, as scientists who are women we were definitely interested in sex differences.

Adaptech Project

For the past year we have been working on a program of research which we call the Adaptech Project (c.f., http://omega.dawsoncollege.qc.ca/cfichten/adaptech.htm). Aspects of this research are partnered by the National Educational Association of Disabled Students (NEADS), the Association québécoise des étudiants handicapés au postsecondaire (AQEHPS) and the Service d'aide à l'intégration des élèves (SAIDE). The research is funded by several organizations: the Office of Learning Technologies (OLT), the Social Sciences and Humanities Research Council of Canada (SSHRC), as well as by the Programme d'aide a la recherche sur l'enseignement et l'apprentissage (PAREA).

The Research Program

After conducting a series of focus groups we recently completed an interview study of postsecondary students with disabilities and service providers/resource persons across Canada. We are currently planning focus groups for various regions of Quebec as well as nearing the end of our Canada-wide survey of more than 3000 students. When completed, the survey should provide some definitive answers to the questions posed earlier.

Findings

In the meantime, data are available from our Canada-wide interview study of 30 Disabled Student Services Office service providers and 37 college and university students with disabilities. Approximately 60 per cent of both samples are female. About 30 per cent of both male and female students were enrolled in math and/or science related fields. Students had a variety of disabilities including: learning disabilities, visual and hearing impairments, mobility and neuromuscular impairments as well as medical and psychiatric conditions. All used computers on a regular basis with the exception of two female and one male student.

Please note that this is a preliminary investigation, and that the sample was by no means random. Caution should be used in interpreting the results.

Work Stations

Our results indicate that about half of the students had two or more impairments.

Also, there was a distinct trend to "cross use" technologies. This, too, suggests that work stations need multiple adaptations. For example, software that reads what is on the screen is used not only by students who are blind but also by students who have low vision and, increasingly, by students with learning disabilities. Use of large screen monitors is another instance of this trend to "cross-use" technologies. Voice input software and scanners are two technological solutions that are not only used by students with learning disabilities, but also by students with mobility and neuromuscular impairments. Thus, it is becoming increasingly important to ensure that different types of adaptive equipment can work together.

Access to Computers & the Internet

A related issue concerns hours of availability, with over 80 per cent of institutions indicating weekend and evening access to adapted equipment, mainly through sign-in procedures. All institutions studied had access to the internet, but only half had adapted computers with internet access. All institutions consulted staff and students about equipment purchases, but only about 20 per cent had broad-based, formal consultative committees.

Internet access for students with a variety of impairments and access to the graphical environment of Windows for students who are blind are rapidly becoming key concerns in post-secondary educational institutions. The data also show a trend toward

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multidisciplinary and multi-sectorial decision making as well as toward integrated mainstream computer labs. Additionally, there was an overall agreement that institutional administrations need to recognize the importance of these technologies for students with disabilities.

There is an even split among institutions that keep their adaptive technology in one central location and those that decentralise their equipment. Similarly, about half of all institutions studied have a loan program, while the rest do not. In general, smaller institutions are less likely to have specialized computer technologies for their students.

Sex Differences?

When it came to self-rated frequency of use and expertise with computers, male and female students in our sample did not differ significantly. Students indicted that they used computers often and that they were reasonably accomplished in their use. When it came to self-rated comfort using computers, there was a trend for women to have lower scores than men, but the difference was not statistically significant.

Almost 80 per cent of female and 60 per cent of male students in our sample had other assistive technologies. Using such technologies as part of everyday life is unique to people with disabilities and may explain why the women in our sample were so similar to the men.

Programs that Fund Computer Technologies for Students Need Better Advertising

People with disabilities, including those who are postsecondary students, are not a particularly wealthy group (Fawcett, 1996; NEADS, 1993). Given students' financial limitations, it was dismaying to find that approximately half of the students surveyed did not know that funding programs existed to help them obtain needed computer equipment (a variety of such programs exist across Canada). This finding was not limited to any particular province but seems to be a general state of affairs across Canada. This suggests that information concerning the availability of programs requires more broadly based dissemination.

Conclusions & Implications

The implications of our findings to date are clear. Students with disabilities can and do use computer and information technologies to help them succeed in postsecondary education. Organizations which support students in this effort need to make funding available both to individual students as well as to colleges and universities. Moreover, because about 1/2 of the students surveyed did not know that funding programs existed to help them to obtain needed equipment, information concerning the availability of programs needs more broadly based dissemination.

Are there sex differences between male and female students with disabilities in computer use? Our data suggest that there are

not. Will this finding hold up when we have 3000 rather than 37 students? Are the present findings an artifact of our sampling? It is certainly possible. Another possibility relates to the fact that women with disabilities in our sample were heavy users of other forms of assistive technologies, which may build confidence in one's ability to use all kinds of technologies, including computers. This is an empirical question which we are presently exploring. ♀

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Balka, E. (1997). *Computer Networking: Spinsters on the Web*. Ottawa, ON: Canadian Research Institute for the Advancement of Women. Abstract available at www.gov.on.ca/owd/bibhco~1.htm.

Fawcett, G. (1996). *Living with Disability in Canada: An Economic Portrait*. Hull, Quebec: Human Resources Development Canada, Office for Disability Issues.

NEADS (National Educational Association of Disabled Students). (1993). Study of financial assistance available to post-secondary students with disabilities: Accommodating individual needs for the future —Final Report. Ottawa: Author.

Spertus, E. (1991). Why are there so few female computer scientists? [Internet]. Available at www.ai.mit.edu/people/ellens/Gender/pap/pap.html.