

# **Feminist Pedagogy and the Lap Top Computer**

## *A Case Study of a University Computer Initiative*

PAULA CHEGWIDDEN

*Acadia University paula.chegwidden@acadiau.ca*

**Abstract:** This paper examines the implications of a laptop computer initiative at a Canadian university. The uses to which the computer is being put in the classroom and the changes to faculty workload and to female enrolment are examined. It is argued that computerised educational technology can be compatible with, and even promote, the goals of feminist pedagogy, but only if a critical technological consciousness is also part of the process.

### **1. INTRODUCTION**

The Acadia Advantage (AA) programme is an innovation in the pedagogical use of information technology at Acadia University in Wolfville, Nova Scotia. Acadia University's home page describes the Acadia Advantage as: "an academic initiative unique in Canada that integrates the use of notebook computers into the undergraduate curriculum." [3].

Leasing a laptop became a requirement for selected programmes in 1996 and a requirement for all first year students in 1997. By the 2000-2001 academic year, all four years of full time undergraduates will have laptops and part time students will pay a pro-rated fee for laptop use (see [3] for details).

This type of programme represents an option that facilitates computer use in university teaching [18]. Other universities have developed programmes that employ desktops in labs or require incoming students to own a computer with certain capabilities. Which option is chosen reflect in part the goals of university use of information technology in particular institutional settings.

There are advantages for teachers knowing that all students have uniform access to software and hardware. But the corollary of this is a computing environment with choices already made about particular software and

hardware. This means that the marketplace skills advertised in student recruiting literature are centred on using an IBM machine with Windows [1, 4]. Acadia's assertion that the AA will "help students identify what information technology is appropriate for their work" [2] is perhaps disingenuous. Simplifying the computing environment for non technical users does mean making choices for them and these choices inevitably train them to be a certain kind of global consumer. Faculty response to this initiative has resulted in a more open discussion of pedagogy than in previous decades at Acadia University. However, the first announcements of the programme put strong emphasis on the technology in itself. A baseline survey of faculty attitudes carried out in 1996 picked up substantial reservations about the atmosphere in which the programme was introduced [7]. There were several skirmishes to ensure that the AA programme did not infringe on academic freedom. A number of agreements constraining the demands that could be made on a faculty member to use the technology were worked out, culminating in the ninth collective agreement, which recognises no obligation of faculty members in regards to using computer technology in teaching. Instead a clause commits employees to explore the use of computers to meet pedagogical needs when, in their judgement, it enhances the learning environment [22].

What are faculty members doing with the technology? The Academic Sector Planning Committee of Acadia University developed a set of categories to label degrees of classroom computer usage, under the headings 'studio', 'interactive' and 'demonstration' [2]. This clarifying typology was developed only *after* the laptop programme had been adopted. It is the in-classroom activity that most clearly rationalises the laptop requirement. In the classroom laptops are being used for on-line writing or discussion as a regular part of the curriculum.

How has the AA changed faculty workloads? The 1996 assessment of faculty cited earlier notes that: "faculty are emphatic that they cannot sustain the current amount of time devoted to course development" [7, p.1]. A recently published study of the AA notes that "workload is increased substantially for course development and may be greater in post-technology maintenance mode than in pre-technology maintenance mode [23, p.11].

## **2. THE A.A. IMPACT ON WOMEN**

What does this have to do with women? Given the large amount of research indicating that females lag behind males in interest in, comfort with, and skills in using computers, it seemed likely that the laptop initiative would change the ratio of male to female students, even though student

recruiting literature emphasises that students do not need to have any particular computer experience before coming to university.

Such effects of the AA have not been noticeable to date, although available research is limited. The percentage of women students has increased through the nineties, a trend shared by other small liberal arts schools. Changes in enrolment patterns at Acadia in the long term are inevitable since the laptop programme increases tuition in a university already considered expensive by Canadian standards. However, there is nothing to indicate up to this point that fewer females are enrolling because of the computer initiative per se (rather than increasing costs).

In the absence of systematic interviews with incoming students at Acadia one can only speculate about the lack of obvious gender effects. Previous research suggests that it would be more accurate to say that women tend to work with computers differently than men do, rather than less well [21]. Student users do relatively little computer programming; an activity rated less favourably by females than males in some research. Eliminating the need for computer labs may have some positive effect on female participation.

Can some of the changes in pedagogy facilitate *women's* learning in particular? At first blush, the ability of computers to enhance education seems questionable. Student recruitment materials clearly emphasize the skill development rationale for using the laptop rather than the enhancement of learning academic subject matter [1, 4]. Further, there is no doubt that the increased emphasis in the 1990s on the role of educational technology came from those who would apply narrow measures of productivity to education. This whole trend could be seen as an attempt to deskill the academic profession by allowing larger numbers of students to be processed through the system [15].

A comparison between much of what is considered to be 'feminist' pedagogy and some of the claims made for the effects of educational technology on pedagogy shows compatibility between computer use in education and feminist pedagogical ideals. In 1994, Maher and Tetreult wrote in *The Feminist Classroom*: "We need an interactive pedagogy, a pedagogy which integrates student contributions into the subject matter" [19, p.9]. A 1991 article brimming with enthusiasm for what it called the "technological revolution" in the classroom describes the proposed changes as "[students] moving away from the passive reception of information to active engagement in the construction of knowledge" [16, p.16]. The authors argue that "Ed Tech helps move from a vision of learning as an isolated individual act to a collaborative activity and that all this implies a change in the role of the teacher away from being an expert to becoming a facilitator" [16, p.17], both goals defined in *The Feminist Classroom*.

Computer use at Acadia attempts to accomplish those changes by doing some combination of the following: 1. by changing patterns of communication among students and between students and professors; 2. by making data from off campus sites available for class research or study in the form of assignments or within the classroom itself; and 3. by displaying complex information in a form where it is understandable in clearer ways and available for student manipulation; 4. by allowing students to develop and communicate more complex ideas by going beyond the limitations of linear text.

## **2.1 Communication among class members**

Many applications involve changing communication patterns within a particular class through the use of an intra-university computer network.

A great deal of effort in computerizing curriculum seems to relate to repackaging conventional university teachings with computer communication added on in the form of presentation software such as Power Point, notes posted to web pages, and professor/student e-mail [12, 27].

E-mail has been changing the professor/student relationship for some time. Most university teachers report an increased volume of student comments, which, given the demands of the medium for instant reply, can seem burdensome. The increase in time for "post-technology maintenance" noted in [23] is primarily due to e-mail. Students will e-mail who won't otherwise communicate with their professors or will say things they won't say in a student discussion group. One could speculate that e-mail might be an advantage for female students reluctant to speak in mixed classes. Further, surveys of Acadia students found that the students with laptops were more likely to e-mail professors than those who had to enter a computer lab to do so [10].

The other component of within-unit computer communication is the electronic discussion group. There are several formats, depending on one's preferences or available software. The advantages of electronic discussion groups in distance education are fairly obvious, since the class could not otherwise meet. But electronic discussion groups are being used inside the classroom. John Slatin [25, p.32] discusses some of the reasons for this in an article titled "Is There a Class in This Text?"

"The transformation of traditionally ephemeral classroom talk into text by means of interactive written discourse...changes the relationship among people by changing their relationships to knowledge...IT...provides unprecedented access to the processes by which, individually and collectively, the class members reach...understanding."

The level of prestructuring of electronic discussion groups required depends much on subject matter, makeup of class, and professorial style. Mason [20, p.219] notes:

"There is a difference between providing an opportunity for discussion...and students making use of the opportunity...Setting up an educational environment which fosters this kinds of interaction is a skilled undertaking, in which the use of any technological media is a minor part of the whole enterprise."

The implication of this comment for women is that the electronic environment in itself, despite the advantages of a certain kind of anonymity, will not keep women from being silenced in a classroom where they otherwise would be.

## **2.2 Internet**

Many university students now use the Internet to collect data from remote databases. As well there are particular academic subjects in which using the Internet to get in touch with activities outside the university, as expressed in Internet discussion or on the World Wide Web, can be part of the curriculum [29].

Almost any academic who assigns a research paper in recent years has had to content with students using the World Wide Web as a data source. There is a lot of information out there that could not otherwise be accessed. The more cyber-utopian writing seems to assume that all the information is useful [26], and some see it as inherently feminist [24] but the web is a morass. The extent to which any student use of the WWW for research must be carefully circumscribed with critical analysis is another reason for increased workloads.

## **2.3 Interactive exercises**

The use of computers to enhance laboratory teaching seems to be the clearest case where they are being used in ways not available by other means. In the physics lab:

"[T]he computer is a tool that is used to solve problems and its use in the classroom emphasises and illustrates this relationship. The computer is used to acquire, store and analyse data, for graphing and curve fitting, and for performing numerous mathematical operations. We analyse film clips of real worldly 'events'" [7, p.2].

## 2.4 Hypertext

But it is the ability to present information in hypertext that seems to attract the most pedagogical excitement in many disciplines [6]. Students may be able to understand subject matter and to express their own ideas in more complex ways because of the non-linear and multi-media capabilities of hypertext. Hypertext links are an ideal way to show how one particular subject, such as the work of an artist or an historical event, is enveloped in a context. The context keeps changing, as illustrated by more and more links. A given subject can be shown from different or even competing perspectives.

Using curriculum employing multimedia applications well, especially incorporating video, is time consuming and expensive. This may mean relying on sizable research grants or commercial producers. This has some real drawbacks in the humanities and social sciences where relying on materials that will attract the widest possible audience and so have commercial value will cut into attempts to diversify the curriculum. In certain subject areas, this could mean regression to an era of women's invisibility in the curriculum, (as well as gays and lesbians, people of color, etc).

Is there a less market driven alternative? Hypertext documents lend themselves to collaborative work, because any number of people can develop information and add it to existing resources. Co-operative manipulation of a variety of graphics software is possible where students can use computers in a studio or laboratory style classroom. Landow [17] introduces the concept of *bootstrapping*, where whole classes or even sets of classes create metatexts, building on the work of their colleagues. These documents could be continued over years, becoming on going cumulative metatexts [28]. "Hypertext is an embodiment in a machine of the social construction of knowledge" [6, p.9].

Whatever its limitations, hypertext construction may be a key to getting closer to the experience of student and professor collaboration in creating knowledge and understanding the socially constructed nature of knowledge.

## 3. CONCLUSION

The pedagogical implications of this for women are still to be determined. Every new technological change in communications was introduced amid claims that it would revolutionize the classroom [11]. One can only make a modest argument that computer applications in university

teaching could open up the curriculum to some of the changes seen as central to feminist pedagogical ideas.

There is a contradiction in making even this modest claim. Goodson and Mangan-Marshall [13] point out that, in the Ontario public school system, computer literacy is postulated as a goal, but what computer literacy actually consists of is unclear. They argue that the very concept of computer literacy is an ideological construct. Its indeterminate character means that as an educational goal it is primarily about creating a sense of need and inevitability, which is directly tied into creating consumers and workers ready to submit to the discipline of information technology.

Yet the kind of pedagogical uses I describe above depend on not having to “sacrifice academic content for computer instruction/trouble shooting, etc.,” [7, p.23] on making technology “a minor part of the whole enterprise” [20, p.219]. Indeed naturalising the computer, coming to think of it as an extension of one’s cyborg self, is seen as positive [14]. Interesting pedagogy with computer applications is possible but only if teachers and students do not have to think about the computer very much.

If the use of information technology in higher education can be reclaimed by educators, the concept of computer literacy has to be reclaimed as well. Acadia University promises students “a high level of computer literacy” [4]. But is someone computer literate who merely thinks of the machine as an extension of themselves or assumes that the machine is merely a tool without awareness of the social/political/economic implications of the technology? Some of this lack of attention is necessary for individuals to function in an environment filled with complex technology. However, a state of dependence is also inevitable. In order for pedagogical use of computer applications to be truly critical, an essential component of feminist goals, we have to find a way to give students have a fully conscious awareness of what it means to use information technology.

## REFERENCES

1. Acadia University Public Affairs (1997). *The Acadia Advantage: An investment in your future* (brochure)
2. Acadia University Academic Sector Planning Committee. (1997). *Academic Overview of the Acadia Advantage*. [www.acadiau.ca/arts/reports/aa-aspc.htm](http://www.acadiau.ca/arts/reports/aa-aspc.htm).
3. Acadia University (1998). *Acadia Advantage Initiative* [www.acadiau.ca/advantage/](http://www.acadiau.ca/advantage/).
4. Acadia University Public Affairs (1999). *The Acadia Advantage: What it means to you* (brochure)
5. Alexander, Cynthia, M.W. Conley, and C. Watters (1997). *The Digital Agora* (Unpublished prospectus, Acadia U.)
6. Barrett, Edward (Ed.). (1995). *Sociomedia: Multimedia, Hypermedia, and the Social Construction of Knowledge*. Cambridge: MIT.

7. Center for Organizational Research and Development (1996a). Current Skills: Trends and Perceptions of Computer Use: Faculty Survey. Wolfville: Acadia U.
8. Center for Organizational Research and Development (1996b). The Acadia Advantage First Impressions Survey. Wolfville: Acadia U.
9. Center for Organizational Research and Development (1997) .Computer Use Survey, April 1997. Wolfville: Acadia U.
10. Center for Organizational Research and Development (1998). Computer Use Survey, May 1998. Wolfville: Acadia U.
11. Cuban, Lee. (1986). *Teachers and Machines: the Classroom Use of Technology since 1920*. New York: Teacher's College.
12. Globe and Mail (January 7, 1997). Lecturers' Reliance on Web Assailed.
13. Goodson, Ivor F. and Mangan Marshall, J. (1996). Computer Literacy as Ideology. *British Journal of Sociology of Education*, 17 (1), 65-79.
14. Haraway, Donna. (1990). *Simians, Cyborgs, and Women*. New York: Routledge.
15. Hodas, Steven. (1996). Technology of Refusal and the Organizational Culture of the Schools. In Rob Kling (Ed.) *Computerization and Controversy; Value Conflicts and Social Choices*, second edition. San Diego: Academic Press.
16. Kozma, R.B. and Johnston, J. (1991), The Technological Revolution Comes to the Classroom. *Change* 23 (1), 10-23.
17. Landow, M. "Intermedia, and the Social Construction of Knowledge." In Barrett, Edward (Ed.). (1995). *Sociomedia: Multimedia, Hypermedia, and the Social Construction of Knowledge*. Cambridge: MIT.
18. LeBlanc, R. and Teal , S.(1998). Hardware and Software Choices for Student Computer Initiative. *Communications of the ACM* 41 (1), 64-69.
19. Maher, F. and Thompson Tetreault M. (1994). *The Feminist Classroom*. New York: Harper Collins.
20. Mason, R. (1995). The Educational Value of ISDN. In *Information Technology and Society: a Reader* (Ed.) by Nick Heap et al. Thousand Oaks: Sage.
21. Morritt, H. (1997). *Women and Computer Based Technologies: a Feminist Perspective*. Lanham: University Press of America.
22. Ninth Collective Agreement between the Governors of Acadia University and the Acadia University Faculty Association 1998.
23. Partridge, V. (1999). The Acadia 'Advantage.' CAUT Bulletin 1999 SWC Supplement, pp.6-10.
24. Plant, S. (1997). *Zeroes and Ones: Digital Women + the New Technoculture*. New York: Doubleday.
25. Slatin, J. (1995). Is there a Class in This Text. In In Barrett, Edward (Ed.). *Sociomedia: Multimedia, Hypermedia, and the Social Construction of Knowledge*. Cambridge: MIT.
26. Spender, D. (1995). *Nattering on the Net; Women, Power, and Cyberspace*. Toronto: Garamond
27. UBC Reports. (Feb. 19, 1998) p. 4 Learning Lacking from too many Web Courses
28. Victorian Web Overview  
[www.stg.brown.edu/projects/hypertext/landow/victorian/victov.html](http://www.stg.brown.edu/projects/hypertext/landow/victorian/victov.html)
29. Watters, C., Marsh C., and Alexander C. (1998) The Digital Agora: Using technology for Learning in the Social Sciences, *Communications of the ACM* 41(1): 50-57.