



# The Evergreen State College

August 9, 1990

## FINAL REPORT

### COMPUTER SERVICES/LIBRARY DTF

#### Summary of the Charge:

Since computers and other new electronic devices are rapidly changing how we use information, the DTF's charge asked us to look for ways in which the Library and Computer Services might work together more closely and effectively, and to suggest guidelines for buying new information technologies and for using media and information resources educationally. The charge particularly emphasized access to resources, instruction and support in their use, and decisions about integrating them into the rest of the curriculum in ways ranging from helping a few students do sophisticated expensive things to helping many students do simple things.

#### Description of Process:

We met from November 1988 to June 1989, and intermittently this year. We spent the first third of our meetings carefully itemizing (from the functional perspective the charge requested) all the current activities of Computer Services and those of the various parts of the Library which involve electronic technology. After educating ourselves about current activities through this process, we prepared and shared individual research reports on recent technological developments and their possible contributions to the college; this phase of our work led to the technology fair we sponsored for faculty and staff during orientation week last fall. During the fair, interested faculty, staff and a few students tried out various CD-ROM databases, videodisk players, Hypercard stacks, and a high-end workstation. We collected their impressions through about forty completed questionnaires. The last third of our time went to discussing and drafting the present report.

We have not undertaken a wider survey of students, staff or faculty. Some students might have been wildly enthusiastic about some possibility we dismissed, like spending \$100 on a CD which makes an immense quantity of public domain software available. Some faculty might have expressed wishes or apprehensions of which we haven't taken account. The following recommendations express the conclusions, after much discussion, of a small group with members from various parts of the college; clearly, further discussions will be needed as technology and the college evolve. There are trade-offs between improving staff and financial support for the technology which we are already using in the curriculum (which some staff urged) and

spending money to spread ourselves into new technologies. This report confines itself to considering new possibilities. Appendices give a summary of some of the principles which seem to us to be operating in our discussions and a series of more extensive reports on current technological possibilities which we discussed in reaching the recommendations.

Although we surveyed the services each area now provides, we did not discuss the possible costs or benefits of shifting the administrative or organizational relationships between the Library and Computer Services. We do feel, however, that the communication and cooperation between the Library and Computer Services might be improved. At the moment, Computer Services sends materials about national developments to the Library staff, and people in Computer Services and the Library staff discuss uses, needs and directions. However, there is not close enough contact so that people in Computer Services are in position to volunteer suggestions about ways to improve efficiency or expand services, or so that it occurs to people in the Library to call up someone in Computer Services and ask for help with anything beyond clearly defined tasks like installing a PC or a piece of software.

We recommend that the Library and Computer Services establish some sort of standing liason, responsible for talking occasionally and actively looking for ways to extend and improve the Library's use of current resources.

Clearly, the reference librarians and the staff in media loan, the mini-media production area, the video production area and the computer center now all carry on similar educational activities - teaching students how to use complicated machinery to do academic work. There is a continuum in this teaching from training people in how the equipment works to educating them in how to use it as a medium through which they can express themselves and explore subject matter. At this point, all these areas train students. In addition, though, some of the teaching which people in the Library do is analogous to teaching programming or systems analysis in the computer center - trying to help students increase their abilities to analyze and organize material in a given subject area and a given medium. With the development since 1984 of new programs in computer science, the teaching of topics like data structures, programming and systems analysis, which used to be handled by Computer Services, has been turned over to the faculty. However, as application programs become more complicated, new possibilities for more extensive and time-consuming teaching are developing in the computer center. As word processing moves toward desk-top publishing it becomes possible to ask students to think about layout, design and typography for an imagined audience as part of writing. Interesting assignments can ask students to design hypercard stacks instead of writing papers, combining text with digitized images and sound (or video from a videodisk player), and including multiple branching options. Learning to create good stacks requires more than learning to run the application; it is a lot like learning to make a terrific slide show or to edit video. The center has recently hired someone to work half-time with faculty on integrating such new possibilities into the curriculum.

Given their shared interests in training, and their common involvement with students using technologies which organize and explore content, it might be useful for the Library media staff and the computer staff to look closely at the materials and structure of each other's current teaching. Media loan does part of its proficiency training through videotapes and detailed handouts about operating particular pieces of equipment. The mini-media production studio has excellent signs attached to equipment which offer lots of detailed reminders for people with experience returning to the equipment after a break, and for beginners. Some of the assignments worked out by the reference librarians and the staff in media services unite learning to use the tools and deeper issues about subject matter and the uses of information in very sophisticated and interesting ways. Across the way, Computer Services has advertised and offered brief non-credit classes on using one or another particular applications tool since 1987. Interesting cross-fertilization might result from the sharing of these, and of other more important ideas about how to integrate training with deeper education about the uses of information which are currently hidden in syllabi and in particular people's teaching methods. (Opportunities to observe and discuss each other's teaching, modeled on the Danforth exchanges, might be helpful here.)

Computer Services and the Library also differ in their relative use of professionals and trained students to provide help to users. The Library adheres to the principle that a professional reference librarian needs to be available at the desk if the Library is going to be open, although other Library staff and student workers sometimes cover the desk during meetings or when librarians are not available. The Computer Center's desk is staffed by a student consultant who calls in a professional when stumped, or has to tell a student to come back later, when a professional will be there to help them. Clearly, each of these staffing patterns involves trade-offs; in discussing them we have ranged over staffing costs, the hours that resources are available to users, the quality of support and education in the use of the resources which is available, how likely students are to ask for help from peers or professionals, and how much students learn in the process of helping and teaching other students. Perhaps these different current staffing patterns are precisely appropriate to the technologies, users, and resources of each area and can't be improved. However, it may be that imaginative new arrangements might produce important gains - letting the Library stay open longer hours (thus meeting the most common student complaint about service), increasing the frequency or quality of support for students using the resources, freeing some professionals' time for more complicated and sophisticated teaching in programs of the sorts with which the Library has experimented in recent years. We recognize that this proposal involves potential difficulties of many kinds, but we think some further evaluation of current patterns, development of imaginative proposals, and cautious and carefully monitored trials should be undertaken. (A study of the questions students ask, how they do or don't get helped, and surveys aimed at assessing their perceptions about these issues might be especially useful.)

We recommend that the Library and Computer Center further evaluate the costs and benefits of their current staffing patterns, and experiment with some

possible variations in them which might improve students' access to and educational use of their resources.

## RECOMMENDATIONS ON TECHNOLOGY

This section gives our recommendations about six significant and rapidly changing areas in which new technology brings the Library and Computer Services together:

- o on-line catalog services
- o document delivery services
- o scholar's media workstation resources
- o campus networking
- o external linkages
- o CD-ROM and optical disk technology

## ON-LINE CATALOG SERVICES

### Recommendations:

- (1) The Library should make its new computerized catalog available from outside the Library walls, and increase the catalog's coverage.

### Planning.

Short term planning would include:

- (1) providing one terminal per campus building, beginning with a dormitory, and
- (2) making dial-up access available to users through a modem.

Longer term plans would point toward:

- (1) continuing to request approximately \$170,000 to catalog the parts of Evergreen's collection (most prominently 10,000 recordings) which are currently invisible to people because they are not on the computer catalog, and providing more non-print staff time to support increased use of this part of the collection,
- (2) providing terminal access from all faculty offices, dormitory rooms, and campus work areas like the computer center and the labs, as well as in Tacoma and any other off-campus academic site, and

- (3) including other libraries such as SPSCC, Gray's Harbor CC, St. Martins and the University of Washington in our new shared catalog.

#### Resource Implications.

The current DYNIX computer system will support a significant amount of additional searching, but access from other campus locations requires network connections; their further development is discussed in a later section. The consortium which runs the catalog is currently testing dial-up access from personal computers, and the Timberland system has already made it available to selected schools. Offering access to Evergreen people from their homes will require dedicating a terminal port on the system to outside calls. The current system is probably sufficient for responding to demand with little or no additional expense for the next three to five years.

If letting users call up the catalog from home and distributing terminals around campus mean that people use the catalog significantly oftener, it will be one factor in the consortium's progress toward purchasing a larger computer; this is a five or so year prospect in current estimates.

Connecting our catalog with those of other small libraries is a matter of public service and principle. In general, it should occur as a result of other libraries choosing to join the consortium and share in its funding. We expect such expansion would increase the demand on our collection while providing few additional library materials for our students. We do hope, however, that it will contribute to a general move toward greater resource sharing which will benefit us in the long run.

### DOCUMENT DELIVERY SERVICES

#### Recommendations:

- (1) We should provide the Tacoma campus with fax capability to communicate with one of the fax machines now on campus, if an analysis of the traffic for a few months suggests that the transmittal speed is worth the expense.

Although images of shipping text, mixed text and graphics, and even video from terminal to terminal shimmered frequently in our discussions, this small project is the only one which seems practical now. Unfortunately, most of the delays in our interlibrary loan document transfers do not result from slow shipping of the documents. We already make most of our inter-library loan requests on-line, and even if we send a request to another library by mail, most of the waiting time is because of the backlog of requests at lending libraries. Our present courier system links thirty-five libraries more rapidly than mail would, and shifting from it to fax



might save a day or two, at the most, of the two weeks it takes to fill the average interlibrary loan request outside Olympia. There are times, toward the end of the quarter, when students come in with inter-library loan requests they give up on because they don't have time to wait; in some of these cases, a few days saved might make a difference, but generally the transmission time is the smallest part of the wait.

When we do on-line searches on the Dialog databases, it is now possible to have citations (or articles, at considerably more expense) printed off-line and then mailed to us, a process which takes a few days. We can also download the information over the modem and print it here, but it is more expensive. Dialog is not currently equipped to send fax.

The computer center has already made an equipment request for a scanner to allow students to import images into desk-top publishing software and image manipulation programs, and optical character recognition software, which will convert scanned text into word-processor files without anyone having to type them over. This equipment would also make it simpler to send printed text over networks or modems, but we doubt that most people will want to go to the trouble very often.

## SCHOLAR'S MEDIA WORKSTATION RESOURCES

### Recommendations:

- (1) Over the last few years the college has managed to give a computer to every faculty member who would have one. We may well have reached the point of diminishing marginal returns on further investments in computer power for most faculty offices. In light of the costs discussed below, other investments such as providing more CD-ROM databases or computers for Library staff, or computer assisted media development and production stations for general use in the Library or academic computing labs, seem more likely to improve the general academic life of the college.

We recommend a survey of individual faculty by Computer Services to try to find ways in which individual assistance might greatly improve faculty use of and satisfaction with current equipment. Computer Services might consider assigning a student consultant to actively search out faculty who would like help in getting their present equipment to do things, as student consultants are now assigned to visually impaired students. Future upgrading of individual faculty equipment should come in response to faculty requests, in particular areas where more power or equipment will allow new curricular or research possibilities, rather than being distributed across the board.

Goals.

When individual faculty or groups needed and requested the resources for particular scholarly or curricular projects we might:

- (1) provide individuals with many applications in a "windowing" environment to permit simultaneous access to text, images and sound, or
- (2) provide groups of microcomputers and/or special purpose computer-based workstations to assist users in creating, manipulating and publishing scholarly work in a computerized environment.

Planning.

Short term planning would be directed toward more actively supporting the use of current resources by individual faculty, and toward expanding the ways in which the MAC Lab and the Computer Applications Lab can be used in photography, motion graphics and visual arts. (The DTF does not take a position as to whether or not the considerable investments which would be required to establish high-speed network connections to link graphic image labs are worth the expense, or would be more valuably employed in increasing the number of independent workstations.)

Longer term planning would be aimed at:

- (1) responding to individual requests for faculty workstation environments offering multi-tasking, local networking and resources like gateways to national networks, machines for large computational problems, large scale data storage, and local and remote laser printing in full color or video output.

Resource Implications.

Costs for scholar's media workstations are dependent on the purpose for which they are intended and would range from \$7,000 to \$20,000 per workstation. The low end cost would provide for a system that did simple color graphics. The high end cost would provide for a workstation that permitted music composition and publishing.

**CAMPUS NETWORKING**Recommendations:

- (1) The College should improve its data communications link with the Tacoma Campus to facilitate access to Library resources such as the on-line catalog.

- (2) The new voice mail system fills some of the functions of an electronic mail system; the College should support its use, and then consider whether investing in campus wide electronic mail, and the other functions it can provide (especially document delivery), would significantly further improve campus communications or staff productivity.
- (3) The College should continue to look for and develop low-speed networking which can be done without large investments in cabling and equipment such as catalog and CD-ROM access by modem, document exchange, gateways to national faculty networks, and access to aspects of campus databases ranging from student addresses to administrative data.
- (4) The College should continue to develop, section by section, a high speed data communications backbone network to facilitate access to and distribution of complex Library, Media Services and Computer Services resources throughout the campus. Funding to improve the network infrastructure should be considered along with other capital acquisitions in prioritizing capital requests to the 1991-93 legislature (with active pursuit of grants and private funding to augment state resources).
- (5) The current investment in computing technology should be protected by developing a data communications infrastructure based on industry standards rather than a single vendor's proprietary technology.

#### Goals.

Low-speed networks like our current one can provide such services as:

- (1) access to the on-line catalog and to external networks for bibliographic searches and collaboration with colleagues,
- (2) support of electronic mail and document exchange,
- (3) access to student, faculty and staff databases (for information like addresses and room scheduling) and access to campus financial information and other administrative data,
- (4) access to CD ROM indexes, and
- (5) limited text transfer.

A high-speed network is required to provide such services as:



- (6) network access to video disk and nonprint information, and distribution of multiple media to campus users,
- (7) distribution of statistical databases, and
- (8) future exchange of multi-media information between scholar's workstations.

#### Planning.

Short term planning should develop services which are possible with the low speed network now in place, or with small investments in equipment. However, the college needs to pay continual attention to the tradeoffs between putting more money, step by step, into this aging technology and making large investments in building a new high-speed network.

In the long run, we should try to develop a backbone network to allow high speed data communications between campus workgroups.

#### Resource Implications.

Costs for network connections are directly tied to the speed and functionality of communications and range from \$500/workstation for a Low Speed Network to \$1,500/workstation for a High Speed Network. The workstations themselves vary in cost depending on their capabilities. (Adding to the current low-speed network also sometimes involves adding an additional phone line.) Overall costs would be a function of the number of workstations and the number of campus buildings included in the work plans, but the total price of adding a high-speed backbone network, in the range of \$500,000, dwarfs the cost of everything else the DTF has discussed put together.

A high-speed backbone network would probably be requested as an item in the capital acquisitions section of the budget. Anticipating this, we have not struggled to sort out our widely differing views about its usefulness relative to the other investments we discussed, since such a request would not directly compete with these other kinds of equipment in the budget process; it would need to be weighed against other capital requests in the college's normal capital budget process. If it were going to be constructed by incremental purchases out of the equipment budget, a new group would need to work out its importance in comparison with the other much less expensive equipment purchases we recommend here.

## EXTERNAL LINKAGES

Recommendations:

- (1) Library services to the Tacoma Campus should be expanded to include on-line access to the catalog.
- (2) Telefacsimile capability should be made available to the Tacoma Campus to facilitate document transfer between the two campuses.
- (3) We should consider linking the Tacoma Campus into the backbone data communications network should the college choose to undertake a long term campus-wide network initiative.
- (4) The Library and Computer Services should continue to seek ways to support the program in Tacoma technically and academically.
- (5) If faculty interest and use continue to grow, the College should establish a node in one of the national academic networks, rather than continuing to provide faculty access to Bitnet through gateway arrangements with the UW.
- (6) Media loan should acquire some laptops, so students whose opportunities to use the computer center on campus are limited, like single parents, have more equitable access to resources.

Goals.

These services are intended to provide:

- (1) electronic mail communication, access to bibliographic databases and to the Library catalog, and eventual high speed data communications between Olympia and Tacoma, and
- (2) faculty access to the national computer networks which are increasingly important in supporting and sharing current research, especially in the sciences.

Planning.

Short term planning would be directed toward:

- (1) providing Tacoma faculty, staff and student access to the Library catalog and to bibliographic databases such as DIALOG,

- (2) providing the Tacoma campus with a WLN LaserCat to serve as a catalog for Tacoma area libraries, and
- (3) providing for simple document delivery via telefacsimile and modem links.

Longer term planning would be intended to provide for access to the wider range of services possible via the campus backbone network.

#### Resource Implications.

Costs for modem links are restricted to the cost of a leased telephone line. Telefacsimile technology costs are dependent on whether a fax card is simply placed in a personal computer or whether a telefacsimile machine is acquired outright, but should not exceed \$1,200.00.

The cost for linking to the campus backbone network should not exceed the workstation costs estimated for Olympia campus offices, but such a connection would also require a high-speed link, such as a leased T1 phone line or a microwave transmission link. How such a link would actually be used, and its costs and benefits, need to be carefully weighed against the costs and benefits of providing additional workstations to the Tacoma campus before this investment is made.

Setting up a BITNET node would require a \$10,000 software package to let one of our current computers function as a server for the network. This investment could provide access to other networks besides Bitnet, and would allow faster transmission times for document transfer, if faculty were interested in that.

### CD ROM TECHNOLOGY

#### Recommendations:

- (1) The Library should significantly expand its holdings of CD ROM information products.

#### Goals.

These products are intended to:

- (1) provide user access to databases through keyword searching (which is not possible with most of the paper versions of these indexes), without incurring high charges for on-line connect time, thus allowing increased use and better instruction. If the use of the ERIC system by teacher education students is a fair example, investments in this area might produce dramatic increases in the use students made of our periodicals.

Resource Implications.

These products are subscription items which will impact the Library's operations budget each year. Annual subscription costs range from \$950-1,250/year/database. Increased use may mean we need more CD-ROM players and PCs devoted to them, so different people can use different CDs at once. Increased use of these indexes is will produce sharply increased demands on our inter-library loan resources. (In fact, the volume of ILL requests produced by the presence of a CD-ROM version of Psychological Abstracts on trial last year was a principal factor in not acquiring it.)

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