Software for Patron Use in Academic Libraries—The Texas A&M Experience

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ABSTRACT

THIS CASE STUDY DESCRIBES the policies and procedures for the selection, maintenance, and servicing of microcomputer software provided to users of the Learning Resources Department (LRD) of the Sterling C. Evans Library at Texas A&M University. Founded in 1979, the LRD provides microcomputers and software for student use, as well as some instructional classes. Collection development policies, selection criteria, upgrades, withdrawals, security, preservation, maintenance, the role of related computing centers, staff training, and service uses are presented.

INTRODUCTION

Providing public access to microcomputer software is not as simple as providing access to printed material. The circulation of software provides many challenges to the academic librarian. The authors will discuss how software is selected, serviced, and maintained in the Learning Resources Department of the Sterling C. Evans Library. When possible, LRD policies and practices will be compared with those of other microcomputer facilities in other academic libraries. Data on microcomputer labs were obtained from articles compiled by Richard Nollan (1986), and authored by Anne Hess (1987), as well as from queries sent to particular academic libraries.

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BACKGROUND

The LRD began in 1979 with special funding provided by the Texas A&M University Administration. Initially, several Radio Shack TRS-80s and Apple IIe's were purchased for the LRD. Through the years, the university has continued to provide extra support, especially for hardware purchase and maintenance. The primary funding for software is included in the library's acquisitions budget. Figure 1 shows the growth of the LRD in number of computers. The decline in the number of Apples, TRS-80s, and miscellaneous machines contrasts sharply with the steady increase in the number of Macintosh and IBM-compatible machines. The predominance of the Macs and IBM machines can be seen more clearly in Figure 2, which breaks down the computer count by model and year. These data are presented because they have a direct bearing upon the software collected. They also illustrate the rapidly changing need for support for various new models of computer.
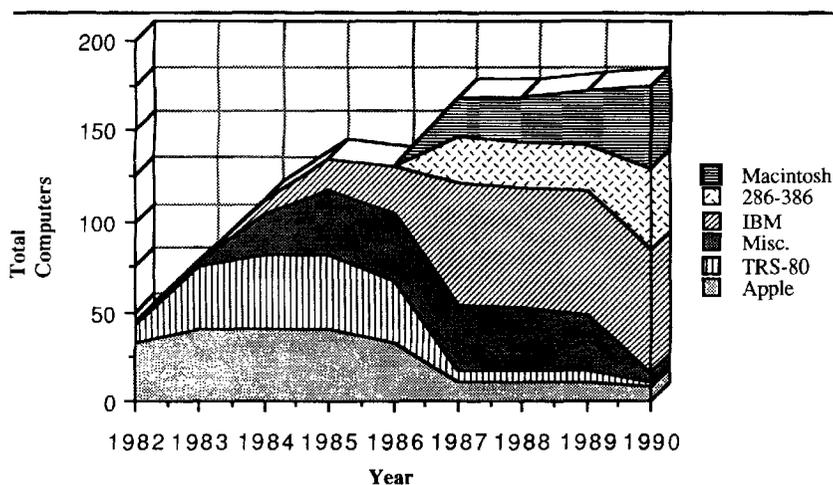

Figure 1. Computer growth in the LRD (1982-1990).

TABLE 1
TYPES OF SOFTWARE PROVIDED BY THE LEARNING RESOURCES DEPARTMENT AND THREE OTHER LIBRARY LABS

Microcomputer	Laboratory A	Laboratory B	Laboratory C	Laboratory D
IBM/compatible	72.0%	40%	90%	40%
Macintosh	28.0%	60%	10%	60%

Most labs, it appears, support Macintosh and IBM-compatible machines. Table 1 compares the types of software provided by the LRD (Library A) and three other library labs.

Year	New Computer	Number	Surplused	Number
1982	Apple II+	33		
	Balcones	2		
	TRS-80 Model 3	10		
1983	Apple IIe	7		
	Plato	3		
	TRS-80 Model 4	25		
1984	Compaq	2		
	IBM PC	5		
	Kaypro II	2		
	Texas Instruments PC	20		
	TRS-80 Model 4	6		
1985	IBM PC	9		
	Tandy 1000	13		
1986	Apple IIe	2	Apple II+ *	9
	Zenith PC	11	TRS-80 Model III	7
	IBM 2-Pen Plotter	1		
	IBM 6-Pen Plotter	1		
1987	IBM PC (CSC)	25	Apple II+ **	23
	IBM XT (CSC)	15	Balcones	2
	IBM PS/2 Model 30	4	Plato	3
	IBM PS/2 Model 50	21	TRS-80 Model III	3
	Macintosh SE	9	TRS-80 Model IV	24
	Macintosh + (CSC)	14		
	VT 200 Terminals (CSC	35		
1988	Macintosh SE	1		
	Macintosh SE/20	1		
1989	IBM PC	1	Texas Instruments PC '	3
	Macintosh SE	6		
	Zenith Supersport	2		
	Apple Laser Writer /NT	1		
1990	Computer Access 386	20	Apple IIe	2
	Macintosh SE/20	1	Tandy 1000	12
	Macintosh SE/30	4	Texas Instrument PC	13
	Macintosh + (CSC)	10	TRS-80 Model IV	5
	Apple Laser Writer /NT	1		

Total

Computers   144

Terminals   35

Figure 2. Computer count by year.

These findings agree with those of the Hess study in which she found that the seven labs studied devoted 82 percent of their software collections to the support of IBM-compatible, Apple, and Macintosh machines (Hess, 1987, p. 8). The size of the collections studied by Hess varied greatly, from the smallest lab with forty-six software titles, to the largest with 663. That same variability in collection size exists today. The LRD has 345 different software titles. Lab B has less than 50; Lab C has over 100, and Lab D has over 500. Lab A was included in the Hess study but Labs B through D were not included.

COLLECTION DEVELOPMENT POLICY

The establishment of a collection development policy for a library microcomputer lab should be based on sound principles and guided by a clear understanding of the mission of the microcomputer lab and the software collection. If the mission of the lab is strictly classroom support, one set of selection criteria will apply. If the mission is classroom support plus promoting general computer literacy or evaluating software, the selection criteria will be significantly different. In either case, the needs of the lab user should be the key guiding factor in collection development and selection. The microcomputer world evolves, changes, and accelerates at such a rapid pace that written policies frequently lag behind reality and need. This is an area in which general guidelines are far more valuable than lengthy, exact, and often restrictive policy statements. The perception of the needs of the lab user, and the mission which derives from those needs, is the most important single element needed for the successful development of a microcomputer software collection.

The mission statement and collection development policy for microcomputer software of the LRD is a simple one: meet the teaching needs of the faculty and the computer use needs of the student body. The LRD does have a much longer document in place, but that is its essence. The LRD serves a significant role on campus as an evaluation site for promising new software. Single copies of promising software are acquired and made available for use and evaluation as funds allow. The potential applicability, cost, and other aspects of such software are reviewed before acquisition is recommended. Whenever possible, "trial versions," "evaluation copies," or donated copies are solicited in lieu of purchasing.

While microcomputer lab software selection criteria may differ, most seem to take into account the following factors: compatibility with hardware, faculty requests, need to support courses, price, and favorable reviews.

Selection

Review Sources. The LRD relies on microcomputer magazines for reviews and commentary on software. Some library sources do exist, but they are, in general, much slower in acquiring and evaluating products than is the microcomputer press. Our primary evaluation tools are *InfoWorld, PC Week, PC Magazine, MacWeek, MacUser,* and *Byte.* For public domain software, *Shareware Magazine* is a good source of information, along with the miscellaneous tidbits available in general sources. Recently, for example, very good shareware tips have appeared in the *Austin [Texas] American Statesman's* business section each Monday. Many other newspapers and magazines offer similar columns. The *Chronicle of Higher Education* notes new academic courseware in a "New Computer Software" column in each issue, which features brief descriptions, but no evaluative comments. Other sources mentioned by lab directors include the *Computer Library CD-ROM* and *EDUCOM.*

Types of Software Collected

While the selection criteria and review sources may vary, there seems to be a trend among microcomputer labs to provide software which falls into certain categories. The types of software shown in Table 2 seem to predominate. The percentages given represent the portion of each lab's collection devoted to that particular type of software.

TABLE 2
PORTION OF VARIOUS LABS DEVOTED TO PARTICULAR TYPES OF SOFTWARE

Software type	Laboratory A	Laboratory B	Laboratory C	Laboratory D
Operating System	3%	3%	10%	1%
Programming language	11%	3%	5%	13%
Word processing	12%	11%	30%	7%
Database management	10%	5%	10%	12%
Spreadsheet	4%	5%	10%	3%
Utilities (inc. communi-cations)	15%	26%	30%	24%
Graphics	13%	9%	5%	20%
Educational, college-level	9%	31%	0%	16%
Other	23%	7%	0%	4%

Version Selection and Replacement

The LRD offers laser printer support for the most popular programs used around the campus. For all programs with laser printer support, the most current version is always maintained on the laser

printer station. In addition to offering the most current printer support package for printing, the LRD makes one copy of each supported program available for general use to allow the user to make editorial corrections and revisions in the lab. For example, *WordStar* 6.0 is offered on the laser printer and on one other station, but the workhorse version made available for general word processing is still *WordStar* version 3.3. A similar pattern exists for other programs whose popularity is eroding, or which have a small user population.

Printer Driver Update and Support

Internal Needs. The LRD currently offers both quality printing on a laser printer and draft printing on dot matrix printers. Whenever a new printer is acquired for the unit, all major software packages are evaluated for need, and printer drivers for all vendors are acquired for the unit. The recent purchase of twenty Hewlett-Packard Deskjet 500 printers had us scrambling for printer drivers for the packages in heaviest use. As you might expect, responses ranged from "We'll send a free driver to you today!" to "Don't call us, we'll call you— collect!" In general, however, vendors are responsive and helpful in dealing with this particular problem.

Patron Requests and Needs
Normally, the LRD does not acquire printer drivers at patron request except for its own equipment. The one exception is the university-wide site licensed software for which the LRD is a major distribution point. In those cases, the LRD will acquire the latest printer drivers for distribution. For direct purchase titles, the "printer disk" set is not made available to general users. The LRD installs all appropriate printers for internal use, and has taken the policy stand that printer drivers for printers not owned by the LRD should not be provided to users. In the case of the one applicable "site license" package, the complete printer driver set was available for distribution to any qualified user.

Version Upgrade: Generation Skipping
Software upgrades come at an alarming (and expensive) rate. For primary software, such as *WordPerfect, Microsoft Word* and a few others, at least one copy of the new software version is acquired for printer support. That copy is evaluated for degree of change, importance of changes, needs related to the new features, patron demand, and cost. If the evaluation indicates upgrade is important, then all copies are upgraded. If changes are minimal, cosmetic, or

not judged critical for operations, upgrading is deferred until another version comes out. As a result, version life of many software products is extended although the LRD rarely maintains a version more than three generations old.

In some cases, however, upgrades are deferred indefinitely. For example, we continue to run *Lotus 1-2-3* version 2.01 even though two subsequent upgrades are available. The pricing policy has made upgrading that product too expensive for the LRD's budget, and competing products with equal or better features are available for significantly less cost. In addition, version 2.01 remains an adequate tool for teaching basic spreadsheet principles, and the basic techniques taught are applicable to both later versions of the program.

In other cases, upgrades are deferred because the product is not satisfactory—e.g., DOS 4 and *DBase IV* both suffer from many defects in their programming. As a result, DOS 4 in fact will be a package we will defer purchasing until release of DOS 5.0.

Public Domain, Shareware, and Commercial Programs

While the LRD collection includes some quality public domain or shareware programs, the unit was budgeted adequately to allow consideration of commercial programs, and the faculty of the university was strongly in favor of provision of the software which would most effectively meet both teaching needs and promote the marketability of graduates. As a result, the LRD started with and has retained an orientation toward commercial software.

It is frequently noted that shareware or public domain software is a less expensive alternative to commercial software. In many cases that may be true. The best shareware, however, has significant costs associated with fully supported use in a microcomputer center. It also bears repeating that shareware products, if adopted in the computer center and used actively, require payment of the shareware fee.

When making selection decisions where shareware cost is a major consideration, it is always wise to contact your local or regional sales representative for the commercial products being considered. Frequently, special educational pricing and the availability of multicopy lab packs actually make the commercial product cheaper on a unit cost basis. This is particularly true if institutional site licenses are involved. At Texas A&M, the best software to meet the goals of the LRD and the university is sought at the best unit price; most of the time, commercial software offers a better value than does shareware.

Public Domain Software Libraries

The LRD does provide a selected collection of public domain

and shareware programs. This collection is selected and maintained by a local microcomputer club and consists of approximately 1,000 diskettes. Beyond that involvement, the LRD does not support or distribute public domain and shareware disks. The Computer Services Center at Texas A&M University does maintain a subscription to a CD-ROM public domain library with extensive program files available to the campus user.

Upgrading and Withdrawals
Disposition of Upgraded Software. In virtually every case in the LRD, an upgrade required the removal and destruction of the old version of the program. Upon completion of the upgrade to a new version, the LRD erases all old disks and discards the manuals. These practices ensure that the programs and documentation are not recovered for use at some external unauthorized location. The diskettes, if not worn beyond a point of safe use, are recycled into the lab's operational stock.

Withdrawals. Withdrawals of computer software are especially problematical. The disposition of the software is sometimes (but not always) covered in the licenses and warranties under which the product was purchased. In a few cases, secondary distribution has been restricted or forbidden; in others, a substantial fee, along with the name of the third party, must be submitted to the software company; in other cases, no obvious restrictions are noted.

In any case, the question of withdrawal and subsequent disposition of a software package must be answered on a case-by-case basis, referring to all documentation received with the software and adhering to all legal restrictions established by the original manufacturer.

Reasons to Withdraw Software. Reasons for withdrawal of software are varied. A few examples will suffice to show the range of reasons for withdrawing titles.

One such reason is that the company folded and the software is now "orphanware." It is possible to maintain a copy of a product for years as orphanware and operate it quite successfully. Ultimately, however, that software will fail, and the "back-up" copy will also fail. At that point the only option remaining is to discard the program.

Another reason for withdrawal is that the product has been declared dead by the manufacturer. In practical terms, the result is the same as with the orphanware noted earlier.

A third reason for withdrawing software is that the hardware on which the software runs is no longer in use or in demand. The LRD owns or has owned multiple copies of programs which run

on the TRS-80 Model III and Model IV. Both the computers and the software were operational and functional. Even though the computers are still good and the software still effective, the environment at Texas A&M University is strictly IBM and Macintosh and students perceive their marketability as sought-after employee candidates as being in part dependent upon familiarity with IBM or Macintosh computers and programs. Thus the older Tandy machines and the software for them were virturally unused.

Newer and better products superseding the product is another reason for withdrawal. Remember *Visicalc?* It still would be a good entry level spreadsheet, but it no longer exists in any viable form, and, if it did, even the entry level users demand access to the popular spreadsheets: *Lotus, Excel,* or *Quattro. MacWrite* was followed by *MacWrite II, Personal Bibliographic Software* by *Procite,* and so on. Each major change requires a selection decision: Upgrade, or not? Again, users' needs should be the major factor in such a decision.

Disposition of Withdrawn Software

In the Evans Library, most withdrawn software is destroyed when it is removed. Several points dictated the choice to destroy rather than surplus or sell:

1. The LRD keeps software as long as there is any viable reason to expect use. As a result, the software is quite old, often as much as five or six years, before the withdrawal decision point is reached. We judge that it is actually a service to destroy software that old rather than mislead some user into believing they are acquiring "current" software.

2. Warranty and license restrictions often dictate the disposition of the software. Some conditions of purchase dictate the terms of use in no uncertain terms. "You may install this copy on one and only one computer. Any other installation requires purchase of a new copy." Don't buy that new computer—you cannot legally use your software. Some warranties and contracts specify the conditions under which software may be sold or transferred and virtually exclude these options from consideration. Fortunately, some manufacturers are adapting to the real world and are writing logical, fair, and readable conditions of purchase.

3. The software has failed and all copies are totally inoperative. In this case the diskettes are erased and recycled but only if they are reliable.

MAINTENANCE

Patron Abuse

Patron abuse takes several forms. Most is based on a lack of

knowledge of computers and software and takes the form of inadvertent formatting, erasure of files, or mishandling of the diskette.

The most common forms of abuse by patrons are "disk cram" (Shove it in even if the door is closed!), "lubricated windows" (Whaddaya mean, don't hold it by the neat little thumb slots on the bottom!), "spillage" (Sir, my disk seems to be wet with Coke—will it still work OK?), and "360Kitis" (You mean you don't type "format" to find out whether it is a 360K disk?). On rare occasions, more malicious activities occur, including theft, willful destruction, etc.

Disk Life

The LRD still distributes software on diskette for IBM computers. Disk life varies and has two components. Operational life refers to the length of time a diskette and program remain operational before attention is needed. Physical life is the length of time a diskette may be reused.

In the LRD, operational life of diskettes ranges from eight to twelve months for general little used programs to seven to twelve days for the most heavily used programs such as *WordStar* and *WordPerfect*.

Physical life of diskettes is harder to track effectively. The LRD recommends that patrons replace their data disks, if frequently used, each semester. As a rule of thumb, the question of How long should I trust a diskette? is answered with the opinion that anything past six months for frequently used diskettes is dangerous. If pressed, an opinion that "frequent use" may be defined as two to three times per week is offered. These opinions are related as much to carrying conditions in backpacks and proximity to beverages as to anything else.

Copy Protection

If the program is copy protected, the LRD will not buy it if any other alternative is available. It has been the authors' experience that this increases theft, makes maintenance of operational copies difficult or impossible, and places the student user who may be dependent on the package for a grade at too much risk.

Vendors, in general, understand the operational situation in a teaching lab and are willing to make adjustments to ensure the protection of student users.

Viruses

The LRD scans all hard disks for viruses regularly, removes infections, and warns patrons of viral problems. The Macintosh Appletalk environment allows the automatic checking of all diskettes for viruses and the rejection of all infected disks. That system has

been highly effective. We continue to see many examples of infected disks, but only because the student users ask how to clean an infected disk.

The IBM environment is not so easily managed. Although products are available, cost and user education have made it impossible to achieve the level of success found in the Macintosh environment. Products such as *Scan, VShield,* and a number of others make virus protection a possibility.

Other labs use similar methods of protecting publicly circulating software from tampering or duplication. More labs seem to be loading software on file servers and providing access over a network. Most still post copyright notices on disk drives or even at the beginning of programs.

Labs have assumed responsibility for providing virus protection software, such as *Virex*—the disinfectant program for Macintosh viruses—on hard disks. The labs also provide virus scan programs on IBM hard disks.

INTELLECTUAL ACCESS

Full Cataloging

The question of "full cataloging" in the conventional sense is still open for some machine-readable file types. In particular, for microcomputer software where version changes are rapid, where upgrade of the version is the rule, and where old versions are not retained, creation of a new record may not be the most appropriate answer. That caveat notwithstanding, a record in the library information system is information which should be available to users. At Texas A&M, the lack of adequate cataloging staff, the high turnover of versions of software, and priorities for cataloging have limited the cataloging of microcomputer software. Cataloging is done as time and staff allow.

Only lab B, which held fewer than fifty titles, cataloged software using AACR2. Like the LRD, the others relied upon listings by title, application, and/or computer type.

Internal Listing

Whether or not the microcomputer software is listed (either fully cataloged or not) in the library catalog, internal listings for in-lab use are often very helpful to computer users. The LRD has historically provided list access by title, type of computer, and type of program. While a search strategy may be formulated to obtain this same level of information from many online access systems, the list used in lab is more efficient and faster to use. It also allows more flexibility than does the online system, bound as it is by cataloging rules,

administrative rules, and sometimes by capabilities. The microcomputer lists at Texas A&M are the first line of use in the lab and are likely to remain so even with full records in the catalog for one significant reason. Only two access terminals are available in the LRD, and only one is for public use. When a significant portion of the microcomputer collection is cataloged, the availability of terminals may increase, of course. Table 3 presents an example of one of the software lists available to LRD users.

PHYSICAL ACCESS

Reservations

The LRD does not reserve software for anyone but faculty who reserve computers and software for actual class presentations in the LRD. Beyond that, software use is on a first come, first served basis.

Length of Loan

Check-out of software is not limited in-house. A user normally has access to a computer and software only for a three-hour reservation period. However, a user could (and sometimes does) stay as much as ten hours at a stretch.

Internal Circulation Only Versus External Circulation

The LRD policy, developed after reference to many articles and careful reading of many "licenses and warranties," limits circulation to in-lab use. Again, the only exception considered is a faculty member who has special needs which the LRD cannot meet. In our view, the external circulation of software is not in the best interest of either the LRD or the student users of the facility. The LRD has barely adequate software to meet internal needs now; circulation on a two or three day loan would, we believe, seriously reduce the potential time-in-use for the package. It is the authors' opinion that a single user with the software package checked out for three days would use it only a small percentage of the time it was checked out.

The issue of manufacturer's rights is also not clearly defined. While the LRD does not police the area for copying, every reasonable (and sometimes unreasonable) effort is made to limit illegal copying and use of software. In the Macintosh environment particularly, manufacturer's rights are well protected by network software; external circulation would negate this protection.

TABLE 3
LRD IBM Software List by Title

SHELF #	TITLE OF SOFTWARE	COMP TYPE	VERS NO.	# COPY	MANUFACTURER	SUBJECT	2NDARY SUBJECT	NOTES AND HISTORY FIELD
A3	ABSTAT 5.10	IBM	5.10	1	ANDERSON BELL	STATS		
A5	ACTION PLANNER (3.5")	IBM	1988	1	POWER UP	PROJECT		
A6	ADA (JANUS)	IBM	1.4.7	1	RR SOFTWARE	LANG		DOS 2.XX
A6	ADA (JANUS)	IBM	1.4.7	1	RR SOFTWARE	LANG		CP/M-86
A9	ARTIFIC.INTELL. & Expert Systems	IBM	1987	2	INTEL TUTOR	ART.INT		Intelligent Tutoring SERIES
A12	ASKSAM 4.2	IBM	4.2	1	ASKSAM SYSTEMS	DATA		UPGRADED FROM 4.1
A21	ATI DBASE III PLUS TRAINING	IBM	3.07	1	AMER TRAINING	TUTOR		
A15	ATI LOTUS 1-2-3 TRAINING	IBM	2.29	1	AMER TRAINING	TUTOR		
A18	ATI TKI SOLVER TRAINING	IBM	2.29	1	AMER TRAINING	TUTOR		
A24	ATI VOLKSWRITER DELUXE	IBM	2.3	1	AMER TRAINING	TUTOR		
A27	ATI WORDPERFECT	IBM	3.07	1	AMER TRAINING	TUTOR		
A30	AUTHOR'S ANALYST	IBM	1984	1	MDS SOFTW ASM	WORD	UTILITY	
A33	AUTOCAD 2.62	IBM	2.62	1	AUTODESK	GRAPHIC		UPGRADED TO 2.62 FROM 2.5
A36	AUTOSORT/86M	IBM	1.17	1	COMPUT CONTRO	UTILITY		ia it for both ibm and ti
B3	BALANCE OF POWER (POLITICS)	IBM	1985	3	MINDSCAPE	EDUC	POLITICS	
S6	BARRONS COMPUTER STUDY FOR SAT	IBM	1.2	1	BARRON'S	EDUC		
M30	BASIC COMPILER (SEE MICROSOFT)	IBM	0	0	MICROSOFT	LANG		
B5	BASS BASE PRODUCT	IBM	85.32	1	BASS INST INC	LIBRARY		
B6	BIBLIOGRAPHY GENERATOR	IBM	1987	1	EDUC ACTIV	WORD	UTILITY	
B9	BOOKDEX	IBM	1.2	1	CAPITOL SYST	LIBRARY		
B12	BRAINMAKER (3.5")	IBM	1.5	1	CALIF SCIE SOFT	SCIENCE		
P78	C 86 COMPILER (SEE PROF C COMPILER)	IBM	0	0	COMPU INNOVA	LANG		
M33	C COMPILER (SEE MICROSOFT)	IBM	0	0	MICROSOFT	LANG		
C9	C FOR ME	IBM	1986	1	COMPU INNOVA	LANG		NO MASTER,ONLY COPY
C12	C GRAPHICS (BOOK)	IBM	?	1	KERN INTERN.	LANG		BY M.J. NOVACK
C13	CALCULUS	IBM	1.0	1	TRUE BASIC	EDUC		
C14	CDEX TEACH YOURSELF LOTUS	IBM	1984	1	CDEX	TUTOR	UTILITY	

Code	Title		Version	Publisher	Category		Notes
C15	CERTIFICATE MAKER	IBM	1986	1 SPRINGBOARD	GRAPHIC		
C18	CHARTMASTER 6.21	IBM	6.21	1 ASHTON-TATE	GRAPHIC		
C21	CLIPPER DBASE III COMPILER	IBM	1985	1 MANTUCKET	LANG		& 4TH DISK- FILEGATEWAY
C24	CLOUT	IBM	1984	2 MICRORIM	UTILITY		DONATED
C25	COLOR MAGIC	IBM	1.0	1 LIFETREE	GRAPHIC		
C26	COMPANY LADDER	IBM	1.0	1 POWERUP	GRAPHIC		FREE UPGRADE
S3	COMPUTER PREPERATION FOR SAT	IBM	1B	1 CORONADO	EDUC		
C27	CRYSTAL (DIFPAT)	IBM	1987	1 SCI SOFT SERV	SCIENCE		
C27	CRYSTAL (POLEFIGURE)	IBM	1987	1 SCIENTIFIC SOFT	SCIENCE		
C27	CRYSTAL (STEREOCUBE)	IBM	1987	SCIENTIFIC	SCIENCE		
C27	CRYSTAL (STEREOGRAM)	IBM	1987	SCIENTIFIC	SCIENCE		
C27	CRYSTAL(XRAY CRYSTALLOGRAPHY)	IBM	1987	1 SCIENTIFIC	SCIENCE		UPGRADES-UNPROTECTED VERS.
D8	DBASE III PLUS 1.1	IBM	1.1	1 ASHTON TATE	DATA		
D5	DBASE III PLUS APPLIC. LIBRARY	IBM	1986	1 QUE	DATA		7 MANUALS W/DRAWN
D6	DBASE III PLUS SAMPLER	IBM	1986	8 ASHTON-TATE	DATA		
D12	DESK COMMANDO	IBM	1986	1 TANSTAAFL SOFT	DESKTOP		
D15	DIFFERENTIAL & DIFF. EQUAT.(BOOK)	IBM	1986	SPRINGER VERLAG	SCIENCE		BY HUSEYIN KOCAK. SOFTWARE= "PHA
M37	DOS (SEE MICROSOFT LEARNING DOS	IBM			TUTOR	OPER	
D18	DSALVAGE	IBM	1.31	1 COMTECH PUBL	UTILITY		RCD 10/88
D21	DUET PRINTER UTILITY 1.14	IBM	1.14	1 CSI	UTILITY		
E3	ENABLE	IBM	1.0	1 SOFTWARE GROUP	INTEGR		DONATED FREE
E6	EUREKA: THE SOLVER	IBM	1986	1 BORLAND	SCIENCE		
E9	EXECUTIVE TRAINING WHEELS	IBM	1.00	1 PRACTICORP	WORD		
E12	EXPERT 4	IBM	1985	1 ELSEVIER-BIOSOFT	DATA		
E15	EXPLORING PASCAL (BOOK)	IBM	1985	1 ASHTON-TATE	LANG		BY JEFFREY LILL
F3	FANCY FONT	IBM	1986	1 SOFTCRAFT	GRAPHIC		mx and fx/rx sets
F6	FARSIGHT	IBM	1986	1 INTERFACE TECHN	INTEGR		
F7	FASTTRAX	IBM	3.91	1 BRIDGEWAY PUBL	UTILITY		
F9	FILE CLERK	IBM	1986	1 POWER UP	DATA		
F15	FILE EXPRESS	IBM	PUBLIC?	1 EXPRESSWARE	DATA		NO MASTER, ONLY COPY

SECURITY

Location of Software
All software which is distributed for use via diskette is maintained on closed shelves in the LRD.

Management of Hard Disks
Some software is maintained on network file servers, and other packages are mounted on user-accessible hard disks. In the case of the network (Macintosh Appletalk), software is handled by a network server and is read only and noncopyable. The network administrator is the only individual who has access privilege to change the status of software.

Hard disks are patron-accessible. The LRD places all normal warning signs regarding copying software, and loads only that portion of the programs needed for use. Any segment which is utility-, installation-, or modification-oriented is not loaded. All software is loaded in read-only sectors of the hard disk to decrease the problem of inadvertent patron destruction of the software.

Handling Procedures, Staff, and Patron
Diskettes are checked out to patrons upon surrender of their A&M identification card. Cards are returned upon relinquishing of the software. Packages are checked for full diskette complement, but diskettes are not checked for either operability or viral infection. Patrons are asked to take only one program at a time.

Preservation
Preservation of working copies is not an issue at the LRD. Diskette programs are expected to have an operational life of from seven to 180 days, depending on the program's popularity. Under peak use, a diskette program may have to be reloaded on a diskette every week.

Actual life of a diskette also varies greatly with one semester probably the average; for popular programs operated by inexperienced users, sixty days is a long life. It is sometimes shocking to see the condition of a diskette after only a week of use. "Folded, spindled, and mutilated" often seems the appropriate description of their condition. Beyond the maintenance of user copies and the archiving of a backup copy, no preservation activities are undertaken for diskettes.

It should be noted here that proper cleaning and maintenance of equipment, including regular disk drive cleaning, is a "preservation" technique for both the hardware and the software.

Role of Related Computing Centers

Currently, the LRD is the only campus computer lab to provide a rich collection of software for evaluation and testing. Other labs are only just beginning to provide even basic software for general student use and do not yet provide adequate support for the present demand. Most other labs on campus are administered by the Computing Services Center, which plans to greatly increase the number of microcomputers available to students for general computing purposes. Currently, only 800 microcomputers are provided in computing facilities operated by the Computing Services Center. Should that number increase, along with an increase in the variety of software available, the demand for services in the LRD could decrease.

Copyright and Other Considerations

Backups of Software. Copyright law allows backup of software to protect from inadvertent erasure. The LRD maintains a backup copy of all software in the collection in a locked master copy cabinet. In addition, the LRD makes a backup copy of all diskettes received in books in the general collection and archives that backup copy in the same locked software cabinet.

Backups of Documentation. A master copy of the complete manual of each computer program owned is kept in closed shelving in the area. Optimally, this should be a room with a lock and high security. The file includes all supplemental documentation available for European functions, special graphics information, printer charts, etc.

Multiple Copies. Wherever necessary, multiple copies are acquired to meet user or faculty needs. The Evans Library has many single copy programs, but there are up to forty copies of the most heavily used software programs. Of the 257 IBM titles, 23 percent have multiple copies and 18 percent of the Mac titles have multiple copies. In Lab B's collection, 99 percent of the titles have multiple copies; in Lab C's, 50 percent; and in Lab D's, only 10 percent. In Hess's study, the average percentage of titles with multiple copies was 17; the percentage per lab ranged from 100 downward to 2 (Hess, 1987, p. 6).

Staff Training and Service

In most library computer operations, lack of adequate or adequately trained staff dictates a minimum level of service. A desirable level of service would include at least some application software assistance. In the LRD, application software assistance is given to users as staff availability and knowledge allows. This level

of assistance is limited to major packages owned by the LRD and is never attempted for packages users bring into the area. In particular, the LRD will not attempt to provide printer support or printing assistance for user-owned software.

If a unit is staffed and supported to provide full service, the types of service provided are best determined by a user needs analysis and a software needs analysis. In doing a needs analysis, care must be taken to distinguish between "needs" and "desires." For example, availability of color printing options is a desire, but rarely a need in a teaching lab.

Special Services

Some special services are so basic, however, that they should be supported in virtually all labs. Disk recovery is a primary example. Rarely does a day go by that some student does not request help in recovering data from a disk. Since the LRD's primary mission is educational support, failure to help a student recover a paper due in two hours would constitute gross nonsupport. Use of standard tools, including *Norton Utilities, Mace,* and *PC Tools* allow for recovery of a significant percentage of "lost" files. Nothing, however, can recover the files of a disk which has been mutilated in a backpack or attached to the refrigerator with a magnet.

With the four common disk formats in the IBM environment and the two disk formats in the Macintosh environment, format transfers are a regular need in a large computer operation. We believe that it is the responsibility of a lab to provide for transfer of the common formats in use on the campus. Provision of format transfer for all possible formats, however, is not required. In the LRD, all IBM and Macintosh formats are handled but not Apple II, TRS-80, Atari, Amiga, or other formats not used in university teaching programs.

One helpful service which could be offered is that of OCR digitizing. Even with moderately priced equipment, an acceptable job can be done in this area. The LRD has made available a text scanning station for several years with some success. After a short training session, users operate the equipment themselves, and report general satisfaction with the service.

Along with OCR scanning, graphics digitizing is a frequently requested service. With the capabilities of word processors in both the IBM and Macintosh environments, and the availability of laser printers, papers with embedded graphics are becoming very common. In particular, writers of theses and dissertations are very interested in such options as are faculty who prepare camera-ready copy for journal use. The LRD currently does not offer this service, but it is available on campus.

Training Staff to Give Appropriate Level of Service:
Hardware and Software

Staff training for supported software is a critical area and one which deserves significant attention. The difficulty, as is normally the case, is finding the time to train staff members and still provide basic service. The LRD operates a fee-based teaching program for *WordPerfect* and *Lotus 1-2-3* and plans to offer a course in *Microsoft Word* in the future. Staff can enroll in those courses as space allows. In addition, internal classes for library staff only are offered by the same teacher. Presently, no DOS course is available in the LRD. The Computing Services Center does offer a DOS course along with many others.

An alternative method of teaching is the use of diskette-based training tools such as the American Training Institute (ATI) programs. These programs are adequate to teach staff the minimal skills for each program and sometimes offer advanced training packages. The advantage of such tools is the flexibility of learning at the user's own speed and convenience. The LRD has used such programs in the past, but new versions to match changes in software are still being sought.

Much of the routine assistance with software is provided by student assistants particularly in the evenings and on weekends. While the regular staff of the LRD does provide microcomputer support, their duties include selection, maintenance, and servicing of audiovisual materials as well. Figure 3 shows the percentage of

Staff Level	Microcomputer Support
Library Assistant II	30%
Clerk III	90%
Clerk II	35%
Clerk II (1/2 time)	100%

Figure 3. *LRD staff* and percent of time devoted to microcomputer support.

LRD staff time devoted to microcomputer support. Not included is that of the the division head (Hall), who is active in the selection of software and the setting of policies, but who also oversees two other departments as well.

CONCLUSION

The LRD is one of the busiest units in the Evans Library. Users spend more than 6,000 hours per week in the LRD using the 144 microcomputers available. While software is expensive to purchase, it is a high use item, and the inclusion of a software lab as part of the library's activities is easily justified. One of the criterion for the selection of LRD staff is that they must be adaptable and willing to accept change. Much has changed since the LRD's beginning in 1979. These changes have, however, brought progress and increased support for the unit from the university administration and from users.

ACKNOWLEDGMENTS

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