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ABSTRACT

The purpose of this study was to determine the current levels of automation and plans for future automation in state-supported, two-year community college libraries. A second purpose was to examine the impact of independent variables, such as enrollment and professional staff, on library automation. Eighty community college library directors and others responded to a questionnaire designed to determine college demographics; current use and future plans for using an online public catalog; automated systems for circulation, acquisition, serials control, and equipment inventory; computer labs; automated reference services; and resource sharing with other organizations. The majority of respondents were providing state-of-the-art library technology. Fifty-eight percent had automated public catalogs, 52% offered online reference services, and more than 72% provided CD-ROMs for patrons to use. Microcomputers or microcomputer labs were offered by 57% of the respondents. The study found that independent college libraries were as progressive as those affiliated with a central system. Size of enrollment, but not collection size or professional staff, were not significantly related to the level of automation. The cover letter and survey instrument sent to library directors are appended. (Contains 15 references.) (KRN)

LEARNING RESOURCE CENTERS OF STATE-SUPPORTED TWO-YEAR COMMUNITY COLLEGES IN OHIO, MINNESOTA, INDIANA & ILLINOIS: AN AUTOMATION STUDY

A Master's Research Paper submitted to the
Kent State University School of Library Science
in partial fulfullment of the requirements
for the degree Master of Library Science

by

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ABSTRACT

A survey of LRCs in state-supported two-year community colleges in Illinois, Indiana, Minnesota and Ohio was conducted in the winter of 1991-1992. Information was gathered on the current levels of automation and future plans for automation in the participating two-year community college LRCs. Various factors such as enrollment and professional staff were examined to determine if they have any impact on the level of automation. Independent state-supported two-year community colleges and those two-year community colleges affiliated with a central system were also compared. The participation of LRCs in regional, state and other organizational networking and resource sharing efforts were also examined. In addition, it was found that only a limited number of LRCs meet ACRL/AECT guidelines with respect to collection size (including serials) and staff in proportion to enrollment. Independent LRCs are just as technologically advantaged as those in institutions affiliated with a central state-wide or other system. Collection size and staff size are significantly related to the level of automation.

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CHAPTER 1

INTRODUCTION

Two-year community colleges are uniquely different from other academic institutions because of their focus on community needs. Their accessibility by the community, moderately less expensive tuition and open access allow students to obtain an education somewhat more easily than on a university campus. "More than half of all students pursuing higher education are enrolled in community, technical, and junior colleges nationwide" (ACRL/AECT 1989, 496).

The learning resource centers (hereafter known as LRCs or libraries) in two-year community colleges have a role of central importance. The LRCs must provide the needed services in a "rapidly changing technological society whose knowledge base provided the vital key to future progress" (Pitts 1988, 63). In a survey in 1988 by Pitts and Thomas, library directors and academic deans of two-year colleges were queried on their views of the LRCs' roles in the institution. The general consensus was that LRCs are no longer book depositories; instead their role is to:

"provide leadership and assistance in developing instructional systems and providing an organized, readily

accessible collection of materials and supportive equipment required to meet the institutional, instructional, and individual needs of student, faculty, and staff" (Pitts and Thomas 1988, 68).

Students and faculty are living in the computer age with personal computers in their homes, offices and classrooms. They expect their community college LRC or library to also be automated. Students and faculty no longer want to seek out the old card catalog or paper copies of indexes for information. They expect and want the use of computer technology to get to their resources as quickly and inexpensively as possible.

Even in light of all of this technology, two-year community colleges, like other academic institutions, are facing a lack of outside funding, higher staff costs and budget cutbacks. LRCs in these institutions are ambitiously cutting corners but also working hard to continue providing the best possible services, including automation. Automation can be a very valuable alternative to some of the more costly services in the LRCs. Decisions concerning automation are very costly and complex, especially to those persons who do not or can not keep abreast of the latest technological changes. Centralization of information of what other LRCs are doing with automation will stimulate ideas, save time and money and help with the decision making process.

In 1989, the Association of College and Research Libraries (1989) published the newly revised Guidelines for Two-Year College Resources Programs. These guidelines recommend the use of computers in areas of services and collection. In Appendix A

of the Guidelines a checklist of basic library services is given which lists ten computer related services. The Guidelines suggest that "new technology and new services should be adopted as they become useful in meeting goals and that LRCs' directors should bring to the attention of the faculty and administration new information formats and services as they emerge" (ACRL/AECT 1990, 591).

Purpose of the Study

The purpose of this study is to determine the extent of automation in state-supported, two-year community college LRCs in the 1980s and early 1990s. The current level of automation and future plans for automation in these LRCs are examined. Another objective is to examine the independent variables that may affect current levels of automation and future plans. The key levels of automation that are important to this study are the online public catalog, automated circulation system, acquisition system, serials control, and automated records of equipment inventory. The latter is usually an important function in two-year community college LRCs.

Other areas of automation to be explored in the LRCs are the availability of computer labs for student use, automated reference services such as CD-ROMs, and online reference services (e.g. DIALOG, BRS, etc.). Also important to LRCs and any library today is resource sharing through cooperative agreements such as OCLC, state-wide organizations, and regional organizations. Resource sharing can include union listing of books, serials collection and interlibrary loans.

The study explores such independent variables as enrollment, collection size (of books and serials), and professional staff and the impact that they have on automation. Also, the LRC's affiliation with a central system or organization such as an university or state-wide system will be examined to determine if these affiliations have an impact on whether the LRCs are automated and at what level of automation. The study will show if there is a trend to who is progressive in the automation movement and who is not.

Definition of Terms

Two-Year College or Two-Year Community College - "Includes publicly-supported community colleges, privately-supported junior colleges, two-year technical colleges, and two-year branch campuses" (ACRL/AECT 1982, 5).

ACRL/AECT Standards - "These standards apply to two-year and three-year academic institutions awarding an associated degree or certificate. They are intended to assist in evaluating and developing learning resources programs" (ACRL/AECT 1989, 496). These standards were approved by the Association for Educational Communications and Technology and the Association of College and Research Libraries.

Levels of Automation - The levels of automation discussed in this study are online public catalog, automated circulation system, serials control and equipment inventory. Word processing, accounting systems, or other office management systems are not included in this definition. Other automation

functions important to this study but not considered part of "levels of automation" are the availability of microcomputers for student use, online computerized reference databases, CD-ROMs and telefacsimiles.

Collaboration - Participate in a formal or informal agreement with an organization to enhance resources or services, e.g. national, regional, state, university-wide or community college system.

Limitations of the Study

The study was limited to learning resource centers or libraries in the states represented by the Midwest Federation of Library Association (MFLA). These states are Illinois, Indiana, Minnesota and Ohio. The study is also limited to only state-supported two-year community colleges, technical or vocational colleges, junior colleges and regional branch campuses of universities. Therefore the findings of this study may not necessarily be generalizable to all two-year colleges.

CHAPTER 2

LITERATURE REVIEW

In 1979, Doris Dale (1984) conducted the first of two surveys on cataloging and classification practices in two-year community college LRCs in the United States. She randomly sampled 100 LRCs asking respondents if they were willing to participate in future studies. In 1983, she developed another questionnaire which was designed to ascertain the use of automation in the two-year community college LRCs. The questionnaire was sent to the same forty-six libraries that responded to the first survey. This survey included sections on not only cataloging services but also circulation services, microcomputer services, reference services, and acquisition services. The study showed the slow but positive steps two-year community college LRCs were making toward automation.

In another longitudinal study, Barbara K. Dohrman and Jack A. Weiss (1985) conducted a nationwide study of two-year community college LRCs and their automation efforts. The 1981 study looked at the current level of automation, the LRC organizational structure, demographic information, future plans

for automation, and the attitudes and perceived constraints on automated services. The respondents were asked to describe their current level of automation and what was anticipated for the future in regard to a three year plan. The 1981 study showed only fifteen percent of the respondents were using any form of automation services and those services were for cataloging and equipment inventory. The responses were positive to future automation and automated circulation systems. Budget constraints were a major factor in why automation had not been implemented. Analysis of the inferential statistics showed that the larger two-year community college LRCs had a greater tendency to have in use or to be planning for automation services. The larger LRCs had a more positive attitude toward automation.

Dohrman and Weiss also conducted a telephone survey of the two-year community college LRCs which were known to be using automated services. This survey gathered narrative information and reported the patterns and relationships which would describe the current status of automation in these LRCs. The study reported some of the factors that contributed to automation. "The presence or lack of equipment in the data processing department, the opportunity for cooperative ventures, the size of the materials collection, budget considerations, previous experience in data processing, and availability of local expertise in automation were all mentioned as determinants by the colleges interviewed" (Dohrman and Weiss 1985, 463). Other factors influencing automated services were relationships with

other institutions that influenced the decisions and involvement in a consortium. The study clearly showed that automation decisions were directly related to individual campus needs (Dohrman and Weiss 1985, 471).

In 1985, another survey (Dubin and Bigelow) compared Illinois two-year community college LRCs with the ACRL's Guidelines and automation services. The questionnaire queried the LRCs about programs and resources; hours of service; staff size; collection; the kinds of services provided, such as automation and telecommunication; and involvement in resource-sharing networks. The questionnaire was designed to help two-year community college LRCs improve resource sharing. By 1985, only twenty of the forty-two responding LRCs subscribed to the OCLC cataloging service. Several LRCs had automated circulation systems, but they varied in type and were not interfaced. The automated services these LRCs were using consisted of word processing software. This study found that these LRCs lagged behind other types of libraries in Illinois. The study concluded that a need for more resource sharing which would include an interconnected online catalog throughout the state was needed. This could be accomplished by interfacing existing online systems and implementing multi-type regional library systems to include all types of libraries within geographic regions (Dubin and Bigelow 1986, 602).

An interconnected online catalog project for the state of Ohio became a reality in late 1991 called OhioLINK. "Six of the

eighteen participating libraries, plus the central site, began preparing for implementation" (State Library of Ohio 1991, 1). The OhioLINK state-wide network will benefit faculty, students, business and the public with a single source of access to over sixteen million volumes through campus computer terminals and dial-in access personal computers. It will also provide a state-wide delivery system so that patrons can request library materials from another college or campus and have it arrive at their local campus library circulation desk (Ohio Libraries 1991, 3). In the phase three portion of implementing OhioLINK two-year community colleges and technical colleges will be connected. Branch campus LRCs may be connected along with their main campuses when the main campus becomes connected.

In an unpublished survey conducted by Margy Kramer (1991) on two-year college LRCs in Ohio the results were shared with LRCs that participated in the study. The survey was conducted in 1989 with thirty-seven LRCs responding to the questionnaire. The study involved technical colleges, branch campuses, urban technical institutes and community colleges. The study evaluated many aspects of automation including CD-ROMs, networking, and integrated automation systems. The study found a majority of the participants with CD-ROMs, online database services, and automated cataloging services. Only one library participated in a CD-ROM network.

A recently published article by William J. Waters (1990) surveyed online searching in United States community colleges.

Waters found that fifty-six percent of the respondents did provide online services. The preferred database vendor was DIALOG, being used by eighty-four percent of the respondents, with BRS being used by twenty-six percent of the respondents. BRS was preferred in the Northeastern states. In addition, Wilsonline was used by sixteen percent of the respondents. Some respondents had more than one database vendor. The primary users of online services in community colleges were faculty, comprising sixty-two percent of the online searches being done and administrators who used the service for nineteen percent of the searches done. Even though the ACRL/AECT standards listed online searching as a basic service for all LRCs, online searching was not often recommended to students due to the attitude of the library staff that printed sources would be adequate for most two-year college students. The problem with encouraging students to use online searching would be compounded by the library staff encouraging students to use less expensive tools such as CD-ROMs. According to this article, this is less satisfactory in regard to currency and relevance to the students' research needs.

From the literature review, it appears that LRCs in two-year community colleges are taking slow but steady steps to offering high technology services to their clientele, whether they be faculty, administrators, students, or the community.

CHAPTER 3

METHODOLOGY

A survey was conducted in order to poll the directors of the LRCs or libraries in state-supported two-year community colleges, technical colleges and university branch campuses in the geographical area comprising the Midwest Federation of Libraries Association (Illinois, Indiana, Minnesota and Ohio). Two directories, The HEP: 1991 Higher Education Directory and the Peterson's Guide to Two-Year Colleges, 1990, were consulted to determine the number of state-supported two-year community colleges in Illinois, Indiana, Minnesota and Ohio. The determined sample size was one hundred and seventeen institutions fitting the definition of a two-year community college.

The questionnaire instrument was designed that solicited information in three sections (see Appendix A). A brief overview of the sections follows.

The first section dealt with demographics and general information about the two-year community college campus. The questions asked whether the LRC was affiliated with a larger system such as state-wide community colleges or university branch campuses. This information was collected to determine if

the size of the institution, type of community college, or the size of the LRCs had any influence on the level of automation that existed in the LRCs.

The second section focused on functions already automated and any plans being considered for future automation. Also asked was whether or not the LRC was currently affiliated with a larger system or had any future plans to do so. This section also sought information on online searching, CD-ROMs, and the availability of microcomputers for patrons to use.

The third section of the questionnaire dealt with the LRC's participation in any formal or informal collaboration activities. Some questions for this part of the questionnaire were based on those of a 1986 Library Study Committee established by the Ohio Board of Regents. These questions were included because of their relevance to this study.

The questionnaire was first sent in December, 1991, to one hundred seventeen LRC directors (see cover letter in Appendix B) in two-year community colleges. This mailing received a forty-eight percent response rate. A second mailing was sent in February, 1992, brought the response rate up to sixty-eight percent. Seventy-seven directors completed the questionnaire; three directors returned the questionnaire uncompleted saying that their institutions did not fit the description of a two-year community college. Although by definition, any technical, vocational technical school, junior college, community college or branch campus offering two year or three year degrees or transfer

branch campus offering two year or three year degrees or transfer programs is defined as being a community college.

To analyze the data from the questionnaires, SPSS/PC+ Version 3.1 (1989) was used to calculate Chi-Square and measures to determine if any of the various comparisons of the data collected were significantly different. Cross tabulation of variables was used in the computations. The level of automation was most often used as a dependent variable. Examples of the independent variables are: enrollment size, collection size, serials size, professional staff, and affiliations.

CHAPTER 4

RESULTS OF THE STUDY

The survey collected eighty responses from one hundred seventeen questionnaires mailed to community colleges in four states for a response rate of 68%. Of the eighty responses, seventy-seven contained usable data; three of the returned questionnaires were not completed. The highest percentage of returned questionnaires to those sent was from Illinois closely followed by Ohio. Minnesota was third and Indiana was fourth. Only responses with usable data are included in the following calculations. The types of institutions with which the responding LRCs are affiliated are reported in Table 1.

Table 1.
Types of Institutions in Which LRCs are Located

Type of Institution	N = 63	f	%
Trade/Tech. School		12	19.0
Community College		28	44.4
College		3	4.8
University		20	31.8
Total		63	100.0

Most respondents are from community colleges or branch campuses of universities. The majority of the community colleges are part of a state-wide community college system in Illinois and Minnesota. The majority of the branch campuses are from Ohio. When asked whether the institution was affiliated with a larger system such as a university or state-wide community college system, the respondents answered 'yes' fifty-one times (66%) and 'no' twenty-six times (34%).

Eighty-nine percent of the institutions offer associate degrees and transfer programs. Eleven percent offer not only associate degrees but also more advanced degrees such as bachelors and masters programs (see Table 2).

Table 2

Frequency of Degree Programs Offered

Degree	N = 71	f	%
Associate		63	88.7
Bachelors		6	8.5
Masters		2	2.8
Total		71	100.0

The enrollment for the LRCs institutions range from as small as 314 in a rural area of Ohio to as large as 14,000 in the Chicago area. The average size of a two-year community college responding to this questionnaire is 2,264. The ACRL/AECT have set eleven enrollment levels for standards of collection size. For simplicity, these eleven levels are combined into three with

the following frequencies for enrollment sizes (see Table 3.).

Table 3.

Enrollment of Institutions in Which LRCs are Located.

Enrollment	N = 77	f	%
Under 1,000		17	22.1
1,000 - 2,999		34	44.1
3,000 +		20	26.0
Not reported		6	7.8
Total		77	100.0

The ACRL/AECT minimum standards were used to measure the frequency of the LRC respondents to collection size, serials size and professional staff (see Table 4). Collection size or number of volumes are broken down to four levels.

Table 4.

Analysis of LRC Collections by Size.

Volumes	N = 73	f	%
Under 20,000		24	32.9
20,000 - 29,999		10	13.7
30,000 - 39,999		15	20.5
40,000 +		24	32.9
Total		73	100.0

The distribution is widely scattered with very few LRCs meeting the ACRL/AECT standards for collection in comparison to enrollment size. The smallest collection size is 500 volumes in a newly formed LRC in a small technical college with an enrollment size of 330 students. The largest collection is over 84,000 volumes in a community college with an enrollment size of 5,845 students.

The ACRL/AECT standards were also used to measure serials subscriptions to enrollment. Instead of using the eleven ranges provided by ACRL/AECT the distribution for serial subscriptions was divided into six ranges (see Table 5.).

Table 5.

Analysis of Serial Collections by Number of Subscriptions

Serial Subscriptions N = 73	f	%
Under 200	18	24.3
200 - 229	11	14.9
230 - 299	7	9.4
300 - 499	26	35.1
500 - 699	11	14.9
Over 700	1	1.4
Not Reported	3	3.9
Total	74	100.0

Comparing these figures for serial subscriptions with the enrollment size the average LRC in the two-year community college meets the minimum recommendation for serial subscriptions (300 subscriptions) for the size of enrollment. The LRC with the

fewest serial subscriptions (22 subscriptions) is in a vocational technical college with an enrollment size of 1,821. The LRC with the largest number of serial subscriptions (734) is also the LRC serving the largest student enrollment (14,000). When comparing these two LRCs with the ACRL/AECT standards it is apparent that neither one of them meet the minimum requirements for serial subscriptions for enrollment size.

The questionnaire also asked the about the number of professional positions in each LRC. The distribution of professional staff positions was broken down into the following four levels as indicated in Table 6.

Table 6.

Analysis of Professional Staff in LRCs

Professional Staff N = 77	f	%
None	4	5.2
One	36	46.7
Two	13	16.9
Three or More	24	31.2
Total	77	100.0

According to ACRL/AECT a two-year community college with 2,264 students (which is the average size determined by the respondents to this questionnaire) should have a minimum of three professional positions.

The data collected in this part of the study on enrollment, collection size (books and serials) and staff were used as independent variables to determine whether any of these variables

had any relevance to whether LRCs in two-year community colleges are currently automated and at what level of automation. The dependent variable refers to the level of automation in this study with respect to the following functions: public catalog, circulation system, acquisition system, serials control and equipment inventory. The responses to the five current levels of automation indicate that with an automated public catalog is the most frequent function of automation. Forty-five LRCs (58.4%) have an automated public catalog as opposed to thirty-two LRCs (41.6%) that do not. Twenty-seven LRCs (35.1%) report an automated circulation system (including integrated and stand alone systems) as opposed to fifty LRCs (64.9%) who do not have an automated circulation system. Only fifteen LRCs (19.5%) have automated acquisition system as opposed to sixty-two LRCs (80.5%) who do not. Again, only fifteen LRCs (19.5%) have automated serials control as opposed to sixty-two LRCs (80.5%) whose serials collections are not automated. Some type of in-house automation for equipment inventory is used by twenty-four LRCs (31.2%) as opposed to fifty-three LRCs (68.8%) who do not have their equipment inventory automated.

These five functions were divided into the following levels of automation (the dependent variable):

1. No automation - 0 functions
2. Low automation - 1 function
3. Moderate automation - 2 functions
4. High automation - 3 or more functions

The independent variables (volumes, serial subscriptions and professional staff) prove to be insignificant using the Chi-Square Test of Relationship. More volumes, subscriptions and professional staff do not increase the level of automation. The enrollment size does have an influence on the level of automation. The larger the enrollment in the community college the more levels of automation that exist in the LRCs participating in this study. The Chi-Square value was significant at <.05 level (.0171) (see Table 7.).

Table 7.

Analysis of the Relationship Between Enrollment and Automation.

Levels of Automation	Enrollment							
	Under 1000		1000-2999		3000+		Total	
	f	%	f	%	f	%	f	%
No Automation	1	1.4	5	7.0	6	8.5	12	16.9
Low Automation	9	12.7	15	21.1	5	7.0	29	40.8
Mod. Automation	2	2.8	2	2.8	7	9.9	11	15.5
High Automation	5	7.0	12	16.9	2	2.8	19	26.8
Total	17	23.9	34	47.9	20	28.2	71	100.0

Chi-Square = 15.43708 p = .0171

Another independent variable that proved significant was the location (Illinois, Indiana, Minnesota and Ohio) of the two-year community college LRCs. Most likely this significant

relationship (.0360) can be attributed to the limited number of responses from the state of Indiana (see Table 8.).

Table 8.

Analysis of the Relationship Between Location and Automation.

Level of Automation	Illinois		Indiana		Minn.		Ohio		Total	
	f	%	f	%	f	%	f	%	f	%
No Automation	5	6.5	3	3.9	0	0.0	5	6.5	13	16.9
Low Automation	7	9.1	2	2.6	9	11.7	13	16.9	31	40.3
Mod. Automation	6	7.8	0	0.0	4	5.2	3	3.9	13	16.9
High Automation	6	7.8	0	0.0	2	2.6	12	15.6	19	26.0
Total	24	31.2	5	6.5	15	19.5	33	42.9	77	100.0

Chi-Square = 17.92987, p = .0360

Illinois and Minnesota both have state-wide community college systems which could be a significant factor in these calculations.

When the level of automation is compared by the LRCs affiliated with a university such as a branch campus, the affiliation with a university has no significant affect on the level of automation in the regional branch campus LRCs (see Table 9.).

Table 9.

Analysis of the Relationship Between
Institution Affiliation and Automation

Level of Automation N = 77	Affiliation No	%	Yes	%
No Automation	10	13.0%	3	3.9%
Low Automation	24	31.2%	7	9.1%
Mod. Automation	11	14.3%	2	2.6%
High Automation	13	16.9%	7	9.1%
Total	58	75.3%	19	24.7%

Chi-Square = 1.84183, p = .6059

When the level of automation is compared with any of the types of institutions being considered in this study there is no prominent type of institution with a particular level of automation. The type of institution has no influence on the level of automation.

The respondents were asked if the LRC participated in any cooperative effort with it's parent institution. This question was in reference to a state or university affiliation and, if so, if any of the four major functions of automation (excluding equipment inventory because this was considered an in-house project) were part of a cooperative effort. Thirty-three respondents are part of a central system; another eighteen were affiliated with a system but shared no cooperative effort. The

other twenty-six respondents are not part of a central system, and so it was assumed that they are independent institutions receiving state financial support.

A summary of the respondents who had current automation projects (either stand-alone or integrated) by function and affiliation is as follows: IND (Independent - no cooperative effort), YES (a cooperative effort), NO (no automation)

Table 10.

Automation Projects in LRCs by Function and Affiliation

Function N = 77	Not Automated		Automated					
			Independent		Coop. Effort		Total	
	f	%	f	%	f	%	f	%
Public Catalog	32	41.5	17	22.0	28	36.5	77	100
Circulation	50	64.9	10	13.0	17	22.1	77	100
Acquisition	64	83.1	10	13.0	3	3.9	77	100
Serials Control	63	81.8	9	11.7	5	6.5	77	100

Of the LRCs currently automated, it appears that independent two-year community colleges are more highly automated (more levels of automation) than those LRCs that are part of a central system.

The respondents were also asked about future automation projects and whether future projects involve being part of a central system. The results are reported in Table 11.

Table 11.

Future Automation Projects in Community College LRCs by Function and Affiliation.

Function	Not Automated		Automated				Total	
			Independent		Coop. Effort			
	f	%	f	%	f	%	f	%
Public Catalog	6	18.8	11	34.4	15	46.9	32	100
Circulation	15	30.0	13	26.0	22	44.0	50	100
Acquisitions	38	66.7	9	15.8	10	17.5	57	100
Serials Control	42	66.7	9	14.3	12	19.0	63	100

Again, the respondents from independent state-supported two-year community college LRCs are as likely to be making plans for future automation as are two-year community colleges that are part of a central system. The LRCs are primarily concerned with automation systems that directly affect the students and patrons such as public catalogs and automated circulation systems. At the present time, or in the near future, automated acquisition and serials control systems do not appear to be important to LRCs.

So far this study has only perused automation functions that primarily benefit the librarians such as acquisitions, circulation, equipment inventory, and serials control. The automated public catalog not only benefits the librarians but also the patrons. Many automated public catalogs indicate the

location of the item, availability, and also allow word searching with boolean logic terms which enhances or maximizes the number of records found in a particular search. Other automated services that benefit the patron are automated reference services such as databases on CD-ROMs and online searching.

CD-ROM databases and online searching are both reference tools found in today's two-year community college LRCs. CD-ROM databases are more popular than online searching according to this survey. Fifty-six of the respondents (72.7%) have CD-ROMs available for their patrons to use. Many of the respondents offer more than one CD-ROM database other than the popular INFOTRAC, which is the number one CD-ROM database (thirty-four LRCs offer INFOTRAC). Other popular CD-ROM databases are Moody's, Wilson Disc, ERIC, Academic American Encyclopedia, Medline and CINAHL.

A crosstabulation was used to see if there is any significance between CD-ROMs (the dependent variable) and professional staff size and two-year community college enrollment (the independent variables). No significant differences were found with respect to these independent variables. Frequencies are reported for CD-ROM use and whether or not the two-year community college is affiliated with a larger system (see Table 12).

Table 12.

Frequency of CD-ROMs by Affiliation Status

Affiliation Status	CD-ROMs		No CD-ROMs		Total	
	f	%	f	%	f	%
Affiliated	34	44.1	17	22.1	51	66.2
Not Affiliated	22	28.6	4	5.2	26	33.8
Total	56	72.7	21	27.3	77	100.0

Eighty-five percent of the independent two-year community college LRCs (twenty-two respondents) have CD-ROM databases and seventy-six percent of the two-year community colleges that are affiliated with a larger system (thirty-four respondents) have CD-ROMs. The frequency distribution by state is reported in Table 13.

Table 13.

Distribution of CD-ROMs by Location of Institution

Location	CD-ROMs		No CD-ROMs		Total	
	f	%	f	%	f	%
Illinois	18	75.0	6	25.0	24	100.0
Indiana	0	0	5	100.0	5	100.0
Minnesota	8	53.0	7	47.0	15	100.0
Ohio	30	91.0	3	9.0	33	100.0
Total	56	73.0	21	27.0	77	100.0

Ohio has the most respondents participating in the questionnaire and clearly has the most LRCs with CD-ROM technology. In fact, 90.9% of Ohio's LRCs responding to the questionnaire have CD-ROMs available to patrons. The five respondents from Indiana did not have any CD-ROMs available to patrons. Seventy-five percent of the respondents from Illinois and over fifty-three percent of respondents from Minnesota's LRCs offer CD-ROM databases.

Online searching is not as popular in the participating LRCs as the CD-ROM service. Only fifty-one percent of the seventy-seven respondents offer online searching and a few of them offer the service only to faculty and administrators. The percent of independent LRCs (50%) and LRCs affiliated with larger systems (51%) are almost equal for LRCs offering online searching services (see Table 14.).

Table 14.

Frequency of Online Searching by Affiliation Status.

Affiliation Status	Online Searching		No Online Searching		Total	
	f	%	f	%	f	%
Affiliated	26	33.7	25	32.5	51	66.2
Not Affiliated	13	16.9	13	16.9	26	33.8
Total	39	50.6	38	49.4	77	100.0

The distribution by state of the respondents whose LRCs offer online searching is indicated in Table 15. Sixty-seven percent of Minnesota's responding LRCs offer online searching, while none of Indiana's respondents offer online searching. Ohio

is a close second with sixty-four percent of it's responding LRCs providing this service, followed by Illinois with almost thirty-eight percent.

Table 15.

Distribution of Online Searching Capability by Location of Institutions.

Location	Online Searching f	Online Searching %	No Online Searching f	No Online Searching %	Total f	Total %
Illinois	9	37.5	15	62.5	24	100
Indiana	0	0	5	100.0	5	100
Minnesota	10	66.7	5	33.3	15	100
Ohio	21	63.6	12	36.4	33	100
Total	40	51.9	37	48.1	77	100

The three most popular online searching vendors are: DIALOG, BRS and WILSONLINE. DIALOG is the most popular with twenty-seven responses, eight respondents have WILSONLINE and seven respondents have BRS. Four other online services are also mentioned.

Another area of automation technology that may be part of the LRCs services to patrons is microcomputers or microcomputer laboratories and software. Microcomputers are available for patron use in thirty-nine (55.7%) of the seventy LRCs responding to that question. Thirteen LRCs (19.5%) also circulate their software collection (see Table 16).

Table 16.

Frequency of Microcomputer and Software Use in LRCs.

Function	Available		Not Available		Total	
	f	%	f	%	f	%
Computer Lab	44	57.1	33	42.9	77	100
Software Circulation	15	19.5	62	60.5	77	100

The third section of the questionnaire asked respondents about participation or collaboration in formal or informal organizations in an effort to share resources, services and ideas. The respondents were asked if they participated in OCLC (Online Computer Library Center), on a state-wide, regional, or university-wide or any other library related organization with the purpose of sharing resources and services.

Several questions were asked about their LRC's involvement with OCLC such as membership participation in the shared cataloging, serials union list, and interlibrary loan subsystems. Forty-seven of the LRCs responding belong to OCLC; thirty-seven LRCs use the cataloging system, eighteen participate in the Serials Union List, and thirty-one participate in the Interlibrary Loan Subsystem. According to the frequency tables, LRCs' participation in OCLC is not only for shared cataloging but also to take advantage of sharing resources with the Serials Union List and for Interlibrary Loans (see Table 17.).

Table 17.

Extent of LRC Participation in OCLC.

Type of Participation	Participating		Not Participating		Total	
	f	%	f	%	f	%
Membership	47	61.0	30	39.0	77	100
Shared Catalog	37	48.0	40	52.0	77	100
Serials Union List	18	23.4	59	76.6	77	100
Interlibrary Loans	31	40.3	46	59.7	77	100

Many LRCs are members of other formal organizations for sharing of resources through interlibrary loans and document deliveries. The telefacsimile is a very important automation tool used in LRCs for quick document delivery. Fifty-four (71%) of the respondents either have a telefacsimile in the LRC or had access to one on campus. Another eight (10.4%) plan to purchase a telefacsimile.

Participation in other formal organizations such as national, regional, state-wide, and university-wide organizations has also meant networking of automation systems such as online public catalogs, CD-ROM networks, regional or consortium serials union lists, and reciprocal agreements for resource sharing. Three LRCs belong to the national organization LOEX (Library Orientation Instruction Exchange) library network. All but five

respondents mention participation in either formal or informal groups. An informal group was formed among four regional community colleges to purchase videos and software to share among the LRCs. Other organizations mention forming formal and informal consortiums with local libraries. One technical school has a very small library with a formal agreement to use the library facilities of a neighboring university. Another LRC group is working on a grant to automate rural LRCs in Illinois.

Forty-eight respondents (62.3%) report participation in regional organizations. Many of the regional organizations mention being multi-type or multi-county library cooperatives. One LRC mentions participating in a county-wide reference group and two LRCs participate in a health science library group.

Almost fifty percent of the respondents participate in state-wide organizations such as ILLINET or MINITEX for interlibrary loans, courier services and serials listings. PALS in Minnesota is a statewide Public Access Library System which includes books, audio-visuals, serials and periodical index. The Ohio Two Year College/OTEU organization publishes a serials holdings union list. One respondent from Indiana mentioned future plans with the state-wide system, NOTIS.

Nineteen respondents (24.7%) belong to a university and participated with other regional branch campus and/or the main campus for resource sharing, document delivery and integrated automation systems.

CHAPTER 5

SUMMARY

This study was limited to state-supported two-year community colleges in Illinois, Indiana, Minnesota and Ohio. The term two-year community colleges includes technical or trade schools, junior colleges, community colleges and regional branch campuses of colleges or universities. Findings of the study indicate that Illinois and Minnesota both have a state-wide community college system; Indiana has a vocational-technical system and Ohio has regional branch campuses. The assumption was made that institutions affiliated with a larger system would be more automated because they would or should have more financial support and possibly more access to technological expertise. It was expected that those two-year community colleges with affiliation with a university or central system such as the state-wide community college systems would be more likely to be automated and offer more automated services to it's patrons than the two-year community colleges with no affiliation. The findings are quite the contrary. The independent institutions' LRCs represent the smaller group of respondents (44%), but

overall they are as progressive, if not more progressive, than LRCs affiliated with a central system. The independent institutions' LRCs not only have automated public catalog and circulation systems, but many of them also have automated acquisition systems, serials control, and equipment inventory. Many of their automation functions are in-house or stand-alone systems. The LRCs which are not automated or have only one automated function, such as the public catalog, have plans for additional automation projects. Some of the LRCs in Indiana and Ohio with institutions affiliated with a central system mention plans to be connected to a state-wide online system in the future. The study also found that more independent institutions' LRCs (84%) had CD-ROMs than those LRCs affiliated with a central system (69%). As far as online reference service is concerned, the two types of LRCs are about equal. In LRCs which are affiliated with a central system, fifty-six percent offer online reference services, as opposed to forty-eight percent for the LRCs in independent institutions.

The study also used ACRL/AECT Guidelines to determine if levels of automation are controlled by such factors as enrollment, collection and serials size, or the number of professional staff. Only a few LRCs meet the ACRL/AECT minimum standards for collection size, serials size, and staff in proportion to the student enrollment. The study found that collection size and professional staff are not significantly related to the LRCs' level of automation. Enrollment size is a

significant factor in the level of automation in the LRCs. There was a lack of sufficient data to compare budget to levels of automation, but with enrollment being a significant factor, more LRCs may be diverting funds away from materials budgets to support automation projects. Fifty-eight percent of the respondents have automated public catalogs, fifty-two percent offer online reference service and over seventy-two percent provide CD-ROMs for patrons to use. Microcomputer or microcomputer laboratories offered by fifty-seven percent of the respondents. The majority of respondents in this study are providing state-of-the-art library technology to their patrons.

Less funds can be spent on materials budgets with the increase in the number of LRCs participating in networking, resource sharing, and document delivery services. The study found that seventy-one respondents of the seventy-seven participate in one or more formal or informal collaborative activities with other LRCs through national, state-wide, regional, university-wide or local organizations. Forty-seven LRCs belong to OCLC with thirty-one participating in OCLC's Interlibrary Loan Subsystem. Seventy-one percent of the respondents either have a telefacsimile in the LRC or have access to one in the parent institution. Many LRCs are involved in local multi-type consortiums for automation projects and resource sharing.

In addition to a state-wide community college system, Minnesota also has a state-wide online catalog (PALS) which

includes books, audiovisuals and serials. Minnesota also offers LRCs MINITEX for serials holdings, interlibrary loans and courier service. A few LRCs mentioned future automation projects connected to either NOTIS in Indiana or OhioLINK in Ohio for automating their LRCs and expanding resource sharing. It appears from this study of two-year community college LRCs in Illinois, Indiana, Minnesota and Ohio that LRCs are actively involved in bringing state-of-the-art library technology to their patrons through automation, networking, resource sharing and document delivery.

The results of this study indicate that further research into levels of automation compared to budget, staff qualifications and computerized facilities within the institution may be useful. Also further research could be expanded to include all two-year community colleges in the four-state area or in other geographical areas. Future research findings in the LRCs in the four states polled in this study may be very different in two to three years if state-wide systems are fully implemented in Indiana and especially in Ohio.

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APPENDIX A.

AUTOMATION SURVEY IN TWO-YEAR COMMUNITY COLLEGES

Demographics and General LRC Information

Name of State: _____

Population of the community where the campus is located: _____

Approximate distance to the nearest college or university: _____

Is your institution a part of a larger system? Yes - No

Type of institution with which your LRC is affiliated? _____

Is the parent institution an university? Yes - No

General Information Automation Survey

Enrollment of Campus (Fall 1991): _____

Major degree programs of campus: _____

_____

_____

Total Volumes in Collection (1991): _____

Volumes added (1991): _____

Total current serials subscriptions (1991): _____

Staff Size (1991) (FTE's): Professional _____ Clerical _____

Student Assistants _____

Total LRC budget (1991): _____

Is there a cooperative effort between your LRC and the parent institution (such as shared information and support)? Yes - No

Automation Information

Which in-house LRC functions are currently automated (computer-based)? Please specify system -- turnkey, brand name or local:

1. Public Catalog _____
2. Circulation _____
3. Acquisition _____

4. Serials Control _____

5. Equipment Inventory _____

6. Fund Accounting _____

7. Word Processing _____

8. Other Specify _____

Are any of these functions part of a larger system controlled by a central site or main campus? Yes - No

If so, please list the above function numbers: _____

Which in-house LRC function(s) do you plan to automate in the future and in what time frame? (e.g. 1 year, within 5 years)

Public Catalog _____ Equipment Inventory _____

Circulation _____ Fund Accounting _____

Acquisitions _____ Word Processing _____

Serials Control _____ Other (Specify) _____

Will any of these functions be part of a larger system controlled by a central system? Please circle Yes or No.

Public Catalog Yes - No Equipment Inventory Yes - No

Circulation Yes - No Fund Accounting Yes - No

Acquisitions Yes - No Word Processing Yes - No

Serials Control Yes - No Other (Specify) _____

Do you offer automated reference services? Yes - No

Do you have a microcomputer laboratory or microcomputers within your LRC for students to use? Yes - No

Please list what microcomputers (brand names) are available.

_____

_____

Do you circulate any software packages? Yes - No

What software packages are available for students to use? Please specify programs or generalize on collection.

_____

_____

Do you offer any of the following bibliographic services? Please check.

BRS_____ CompuServe _____ Dialog _____

Vu-Text _____ Wilsonline _____ Other (Specify) _____

Do you offer CD-ROM Products? Please check all that are offered.

Academic American Encyclopedia _____ ERIC _____

BIP Plus _____ INFOTRAC _____ Compact Disclosure _____

Newsbank _____ Compact Medbase _____ Computer Library ___

CONSU/STATS _____ Dissertation Abstracts _____

Wilsondisc (Specify)_____

_____

_____

Other (Specify)_____

Collaboration

Are you a member of OCLC? Yes - No

What subsystems of OCLC do you participate? Please Check.

Shared Cataloging _____ Serials Union List _____

Interlibrary Loans _____

Do you have a telefacsimile? Yes - No

If so, what brand? _____

If not, do you plan to purchase one in the future? Yes - No

If yes, what is the time frame? (e.g. 1 year, 5 years)

_____

Does your LRC participate in any other formal or informal collaborative activities to enhance the resources/services of your LRC other than OCLC? Please provide name(s).

University wide _____ Intra-state_____

Regional _____ National _____

State-wide _____ Other (Specify)_____

Do you have future plans for new collaborative affiliations which will enhance the resources/services of your library? Please describe type of affiliation and future timespan.

_____

_____

Additional Comments

_____

_____

_____

THANK YOU FOR YOUR COOPERATION.

Please send your completed questionnaire to:

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Thornville, Ohio 43076

School of Library and Information Science
(216) 672-2782
Fax 216-672-7965

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February 14, 1992

Dear Library Director:

I am conducting a study of all two-year community college LRCs in the midwestern states of Ohio, Indiana, Illinois and Minnesota (MFLA) as part of the requirements for a master's degree in library and information science at Kent State University. The information gathered from this study focuses on the extent of automation in community college learning resource centers and is potentially very useful to all LRC directors.

Although your participation in the survey is voluntary and anonymous, your cooperation and input are extremely important. The information you provide can help other learning resource center administrators in making decisions regarding computer technology, as well as providing a useful profile of the implementation of automation in community college library facilities.

I hope you will take 15 to 20 minutes to complete the enclosed questionnaire. If someone of your staff can better answer the questions feel free to pass the questionnaire on to them. The results of the survey will be available upon request.

Please return the questionnaire in the enclosed stamped, self-addressed envelope by March 3, 1992. Thank you for your participation. Your cooperation is greatly appreciated.

Sincerely,

Joyce S. Mohler