

**Effects of Automation on Academic Libraries**

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**Submitted By**

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# CHAPTER 1

## INTRODUCTION

### Background of the Problem

The growth of academic libraries is one of the most significant factors in the advancement of the American university. Although the origin of academic libraries in America dates back to 1638 at Harvard, some of the most dramatic changes have occurred since World War II. Collections grew extensively during the 25-year period from 1945 to 1970. By the early 1970's technologies (including automation) began to affect libraries in profound ways. Charles B. Lowry (1985), Library Director for the University of South Alabama, noted:

Libraries are fundamentally nineteenth-century institutions. They have, for over a century, been labor-intensive craft workshops. Today, the library is being transformed into a capital-intensive, high-technology light industry. The extent of technology applied to libraries over the past ten years is unprecedented in scope and impact (p. 27).

The major cause for change in academic libraries in recent times has been the adaptation of computers to library activities. Card catalogs are being replaced by new, on-line public access catalogs. Various indexes to periodical literature and encyclopedias are searched through online, database retrieval services. Interlibrary cooperation has been revolutionized through electronic transmission of information. Some educators and librarians see the new technology phasing out traditional libraries and replacing them with computerized information systems.

Numerous obstacles are faced by librarians as the new technologies invade their libraries. Library collection development offices are confronted with a variety of issues as they examine ways to deal with the proliferation of the printed page and a high yearly inflation rate caused by increased prices in publication.

Many buildings are not large enough to adequately house large academic library collections. Policy statements are outdated quickly, due to changes in faculty, curriculum, and technology.

Libraries are faced with "... the realities of limited resources, tremendous growth in the amount of information available, increased demand and expectations of users, and increased cost of acquiring, storing, and servicing collections" (Tolliver, 1987, p. 223). In spite of these realities, Tolliver believed collection development to be the most fundamental library function and felt that it deserves top priority in academic libraries.

Frankie (1982) stated:

The definition of collection development still is not widely understood... There is little theory to guide us... The theory has been revived through a 'cloud of mystery'... Collection development today is certainly a most exact science. There is really no way,

at present, for any of us to determine whether a collection is or is not adequate. Formulas exist, but these are arbitrary constructions rather than validated criteria (p. 103).

In response to problems facing academic libraries, librarians are having to take a hard look at automation and the changes it is bringing about.

### **Need for the Study**

Institutions of higher education in the United States must maintain libraries that can adequately support the instructional and research needs of their faculty and students. Having ready access to a variety of information is essential in any university. Costs of periodical subscriptions and index services continue to mount, however, causing library administrators to rethink the need for increased numbers of subscriptions. Publishing costs continue to grow, making interlibrary cooperation essential, as book costs mount. There is also a tremendous increase in the cost of automation, especially in light of patrons' needs. The typical American college student, like his/her counterpart in the business world, wants specific bits of information quickly. Browsing the shelves for a good book may become a thing of the past, as librarians turn to automated information retrieval.

Space is yet another area librarians and university administrators are studying. New technology does not always mean space savings. Though card catalogs are massive, there is still a need for the same space allocation to house numbers of public access terminals, printers, CD-ROM readers, and data processing equipment. Reference services are also having to reconsider traditional methods for using the reference section. Librarians now must be able to pull together key word search techniques to locate information on-line through various databases rather than looking through rows and rows of reference books.

Academic libraries continue to face difficulties of various forms in their efforts to provide information to their users. As technology shapes the face of academic libraries and the way their collections are built, it becomes necessary to clarify the questions and define the issues. Therefore, as a beginning, it is essential to determine the effects automation and systems of electronic retrieval of information have on academic libraries.

## **Statement of the Problem**

Academic libraries are undergoing numerous changes as a result of automation. It has become increasingly more important that studies be conducted to evaluate the effects automation is having on library personnel, library users, and library budgets.

The purpose of this study was to determine the effects automation is having on academic libraries. The study was designed to provide answers to the following research questions:

1. What are the major factors in developing and library implementing an automated system for an academic library?
2. What are anticipated benefits resulting from automating the library?
3. What results are observed that were not anticipated following automation of the library?
4. What effects will automation have on the total library budget?

## **Significance of the Study**

It is hoped that information derived from this study will make a vital contribution to the understanding of technology and its effects on academic libraries. It is further expected that the result will be useful to academic library directors in their planning for the future.

## **Definition of Terms**

An understanding of the following terms will be useful and important in achieving the purpose of this study:

**Collection Development.** Collection development is the systematic selection and purchase of materials in a wide variety of formats that enable the library to fulfill its mission to the students and faculty of the institution it serves. Not only does it involve the acquisition of new materials, it also involves weeding and preservation of existing materials.

**OCLC.** The Online Computer Library Center is a nonprofit membership organization located in Dublin, Ohio. The OCLC operates an international computer network that libraries use to

... acquire and catalog books, order custom-printed catalog cards and machine-readable records for local catalogs, arrange interlibrary loans, maintain location information on library materials, and gain access to other databases (OCLC Annual Report, 1987, p. 20).

Currently, there are over 9,000 members of the OCLC, and their online union catalog contains over 20 million titles. Libraries from a variety of countries, such as Japan, the

United Kingdom, Denmark, France, Spain, and the United States, participate in the network.

**Amigos.** The Amigos Bibliographic Council is a nonprofit organization that acts as a resource-sharing network for libraries in the Southwest United States. Amigos has over 300 members from Arizona, Arkansas, Illinois, Kansas, Louisiana, Nevada, New Mexico, Mexico, Oklahoma, and Texas. Amigos acts as a go-between for its members and the OCLC.

**CD-ROM.** CD-ROM (compact disc/read only memory) is a form of media that can store and retrieve large quantities of information through the use of laser optics. One CD-ROM can store the equivalent of 250,000 typewritten pages (Nissley, 1988).

**Database.** For library use, a database is a collection of index records in machine-readable format.

**Full-Text Database.** A full-text database is one that contains the complete text of a resource document.

**Information Retrieval Systems.** Harter (1986) defined the information retrieval system as

... a device interposed between an end-user of an information collection and the collection itself. The purpose of the system is to capture wanted items and filter out unwanted items from the information collection (p. 245).

**Machine-Readable Format.** Machine-readable format is a database readable by electronic input devices.

**Online Information Retrieval System.** An online information retrieval system is

... an information retrieval system operating with a computer, terminals, communication lines and links, models, disk drives, and databases in machine-readable form that are accessible in an online, interactive mode (Harter, 1986, p. 246).

**Software.** Software is the programs that control the functions of a computer system.

### **Assumptions of the Study**

It was the researcher's desire to determine the effects automation is having on academic libraries, yet it was not expected that all of the effects would be identified. It was also the researcher's desire that the library directors selected to participate in the study would report accurately and honestly their assessment regarding automation at their institutions.

The research methodology used in the study should not be viewed as the only valid way to determine the effects automation is having on academic libraries. Other methods may be equally effective in identifying additional effects.

## CHAPTER V

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### Introduction

This study was conducted for the purpose of identifying effects automation is having on academic libraries. An extensive review of the literature focusing on the historical development of academic libraries, history of library collection development, significant issues of academic libraries, and the introduction of automation to academic libraries was conducted. The Delphi study technique was the method utilized for gathering data. The Delphi study technique was the method utilized for gathering data. Three questionnaires were sent to 26 academic library directors belonging to the Amigos Bibliographic Council to elicit their responses.

#### Summary

Information obtained from the review of literature and analyses of the data revealed through the Delphi study technique showed that the eight most important steps in the development and implementation of automated library procedures are as follows: (1) vendor selection is based on functionality, cost, existing local hardware and support, speed and user friendliness, (2) have full support of the administration, (3) make on-site visits to libraries having integrated systems, (4) select a committee of librarians to create a want list of what they want, (5) have vendors bring demonstrations to the library, (6) select a committee of librarians and computer center people to study the systems, (7) have a dedicated staff and highly experienced person in technical services, and (8) draft detailed requests for proposals to be sent to vendors.

The analyses of the data further revealed that major benefits resulting from automation, both anticipated and unanticipated, were: provides more control over the circulation records, ability to provide access both on and off-campus, much easier to update the catalog, and reference services were enhanced.

The data gathered also revealed that automation effected the budget by increasing maintenance costs, the need for more equipment, and the need for more computer supplies. The study also revealed that automation fostered growth in the total library budget.

In personnel matters, the analyses revealed that a well-planned transition and thorough training are necessary for the staff. It is vital for personnel to become computer literate, and on-going training is necessary for survival. There was a consensus, too, that the total workload for personnel increased.

The analyses of data revealed that users have found searching greatly facilitated, they enjoy access from a variety of places, and they like being able to see if an item is checked out. The data also revealed that circulation is increased as a result of automation.

These findings revealed a consensus from library directors and substantiated the effects automation is having on academic libraries in the areas of development, budget, personnel, and users. In addition, the findings revealed a consensus regarding benefits resulting from automation.

## CONCLUSIONS

The following conclusions were drawn from this study:

1. Academic administrations and academic library directors should not anticipate financial savings when developing and implementing an integrated automated library system. There will be increase efficiencies in record keeping, but generally, the results of automation will be a more effective operation of library procedures.
2. Academic librarians tend to focus on the preparation and process of automation. There also seems to be an emphasis placed on the processing of materials and their prompt return to the library. This focus on doing things correctly may mean a de-emphasis of providing information to users. Librarians, therefore, may need to spend more time in training and assisting users in how to use the library, especially in the area of automation.
3. With the better management of records through automation, circulation of library materials have increased. The automated circulation system is also allowing librarians the opportunity to evaluate their collections and is therefore assisting in the area of collection development. The increase in circulation may indicate that patrons find much more than they actually need. Librarians will now have to instruct users on how to be more selective with the information they are seeking.

## RECOMMENDATIONS

The following recommendations were presented as a result of the study:

Further study and research should be conducted to determine the actual impact automation is having on personnel workload. The importance of such a study was supported by the fact that the results of the study indicated an increased workload, although there were contrasting views suggesting that a smaller staff was needed in some libraries.

In addition, it is suggested that a study be conducted to determine the primary focus of an academic library. The review of literature suggested that academic libraries in the past focused on collection development. It appeared, though, that automation may be bringing about a shift towards utilization, circulation, and making available a variety of information sources. In other words, accessibility may be the main concern of academic libraries.

It is further suggested that a longitudinal study be conducted of the effects of automation on the total academic library budget. Specifically, does the increased budget, as revealed in this study, provide computers and computer software for delivery of information, or does it help increase funds for materials, personnel and services?

It is further recommended that a study be conducted to determine effects automation is having on the design and construction of new and/or remodeled academic library buildings. A study such as this would aid librarians in planning for the future.