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A MAJOR FIELD PROJECT

Library Automation in South Carolina Media Centers

by

Nellita P. DuBose

A major field project

submitted in partial fulfillment of the requirements

for the degree of Doctor of Arts

Nova University

December, 1989

Nova University
Center for Computer-Based Learning

I certify that I have read and am willing to sponsor this dissertation submitted by Nellita P. DuBose. In my opinion, it conforms to acceptable standards and is fully adequate in scope and quality as a dissertation for the degree of Doctor of Science at Nova University.

January 3, 1990 (date) — Marilyn Kemper
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ABSTRACT

This investigation, which was started in April, 1988, was designed to assess the extent of automation in academic and public libraries and school library media centers in the state of South Carolina as well as the prevailing attitude toward library automation. School media specialists were surveyed at their annual convention, and public and academic librarians were mailed the same surveys to ascertain the percentage of media centers in the process of automating a part or all its processes and to determine their attitude toward library automation. From the results of the study, one sees that the direction of library automation in the state's public school, academic, and public media centers is progressing slowly toward the use of automation. Only eight percent of the school media centers represented by surveying the members of the South Carolina Association of School Librarians were automated; only 30 percent of the surveyed academic and public libraries were automated.

However, the scores attained on the attitude scales suggested a desire to progress toward library automation more quickly than to date. Both public and academic librarians expressed a positive attitude toward library automation. School media center specialists also expressed a positive attitude toward library automation. These positive attitudes were explained by using an author- composed questionnaire based on the Likert scale and H. H. Remmers' scale.

CHAPTER I

Introduction, Purpose, and Background

INTRODUCTION

Libraries are part of the society in which they exist. As a consequence, both cultural and technological changes affect the library and its basic operations.

Historically, libraries have tried to acquire the materials necessary for a collection to meet the needs of the patrons. For instance, nonprint resources including films, filmstrips, microforms, records, and tapes were provided to enhance service. This is evident in the statistics available for the 1984-85 school year for school libraries. In total, schools added 4,836,144 book volumes. However, they also added 507,998 microforms, 226,165 film and filmstrip titles, 64,039 video tapes, and 130,802 computer software titles (Statistics of Public, 1987).

The importance of these statistics lies with the realization that the computer and other related technology will be influencing the library's operations from today forward. As Luskay (1983) says:

> Reference service in the 1980's is linked to understanding of student uses of resources and facilities, to the increased involvement in networks, to the further development of bibliographic instruc-

> tion at all levels, to increased use of computer technology in school library media centers, and to the availability of funds from federal, state, and local sources. (p. 430)

As librarians had to begin maintaining and making equipment available in the forms of film projectors and cassette tape players, they found cataloging and housing to be major concerns. However, because of the standardized format of the 16mm film, the cassette tape, and the 35mm filmstrip, they found these two concerns to be the most difficult problems.

The computer and its incorporation into library facilities places libraries in a different position where there are few clear choices and even fewer areas of standardization. A computer does not have the same standardized makeup as a cassette player or a 16mm film projector. The software for each type of computer is exclusive to that hardware.

The role of the librarian/media specialist has shifted from that of keeper of the books primarily to that of one linked to information storage and retrieval. Luskay (1983) maintains that there are four interrelated functions for national standards of school library media programs: design, consultation, information, and administration. Lawrence (1980) says that user education librarians need to acquaint themselves with the new areas of basic principles of information science, user surveys, and research techniques. Yet, the perceived role of

the library media specialist has not changed for many of the people who control the financial and administrative mechanisms within which library media centers operate. This is especially true of public school administrators. Craver (1986) reports that in 1978 in THE ROLE OF THE SCHOOL LIBRARY MEDIA PROGRAM IN NETWORKING the five barriers to school library networking were psychological, political, legal, financial, and communication planning problems.

STATEMENT OF THE PROBLEM

Libraries have traditionally been a primary source for information seekers. The library only needed someone who could acquire and process materials to be made available to the patrons for their information needs. Procedures, materials, and furniture were similar from one library to another. Patrons could use different libraries with relative ease because libraries housed similar materials in similar ways and a librarian could answer questions and give help if help were necessary. The arrival of the computer and other resultant technology have reshaped the role of media specialist and have clouded these once clear modes of operation. As Barron (1988) says " part of the shift is the result of the availability of technology to transfer information and the decision to make use of that technology " (p. 12).

Herein lies the problem for which this study was undertaken. In an effort to determine what role automation technology was

playing and would play in the services seen in libraries of South Carolina, the attitudes toward meeting these information needs had to be addressed. The perceptions of both librarians and library users are important in assessing the future affect of library automation. Otherwise, students in South Carolina's public schools may be unprepared for future use of other types of the state's libraries, particularly academic and public. According to Craver (1984), online catalogs, database searching, networking, interactive television, and CAI are just beginning to be visible in the school media center but academic libraries have carried the standard in this area for ten years. A major communication problem is that public school librarians do not know what their public and academic peers are using or how significant they feel automation is in their media centers. One reason for this can be that academic librarians have never defined their goals or the scope of their work beyond a general intention to assist readers with whatever they might need to use the library, according to Freides (1983). Other reasons can be those stated by Katz (1974), which he based on several studies, that concluded (1) too little is known about the real needs of students at all levels of the educational process and (2) while students are a major user of reference services, such use is almost entirely course-related.

The standard procedures are being replaced because sophisticated, technical equipment is requiring other approaches. The large, wooden card catalog with separate drawers is being

phased out by a computer terminal and printer. The time-consuming task of searching individual indexes for articles for a research paper is practically eliminated with the use of an online database accessible with a telephone, modem, and a computer. The limited availability of journals in a particular library is being offset by CD-ROM disks and online database technology. However, even more service is available. Today, with computer-assisted help, one library can directly as well as indirectly be linked to all other libraries and sources of information. Of course, the hardware and software needed to accomplish this link is far more expensive than the old methods of library interaction.

Library media specialists have become aware of these changes because of many factors. One is the amount of publicity being generated by the vendors of the various hardware and software systems. The second is because the theme of many conventions and workshops is automation technology. The third is the appearance of college courses related to automation technology in library science and similar fields such as education. However, as Tschudi (1983) points out, the training has been filled by vendors and database producers and it is excellent but mechanical.

Realistically, library media specialists are limited in the responses to these changes. Librarians must deal with library boards, municipal and/or state government agencies, and school/academic administrations for funding to support these

changes. Often, these boards, agencies, and administrations are headed by people who have not been exposed to all the research articles and vendor sales pitches about library automation that the library heads have. Thus, the librarian must educate his or her particular governing body about the benefits, differences, and operating procedures inherent with automation technology. This is in addition to the library media specialist educating himself or herself as well. An article that echoes these ideas ("Einstein: A Study," 1987) states that although it has become commonplace to suggest that students develop skills in using online databases, most school library media centers do not offer such services because of the lack of equipment and funds. Many school systems and state agencies have developed curricula and units, but it is not easy for schools to use online bibliographic services and it is not easy for students to learn online skills ("Einstein: A Study," 1987).

These problem areas are not easy to circumvent. Time, money constraints, and attitudes are specific factors that have a bearing on these educational processes. They are also factors which will help shape the direction of library service in the future. However, of all the factors that will influence future library services, attitude is probably the most significant. Attitude is defined as "one's disposition, opinion, etc." (Webster's new world dictionary, p. 40). Administrators tend to push programs that they feel are worthwhile and eventually helpful to large numbers of patrons.

BACKGROUND

A major function of library service has been to meet patron or user information needs. This involves having materials, both print and non-print, to meet those needs. The librarian has been the person responsible for using available funds to purchase these materials. Yet, the purchase of materials is more complicated now than before the arrival of computer technology. One of the complications arises from lack of knowledge and understanding on the part of library personnel and those in charge of administering funds for library operation.

A perfect example can be seen in a task facing a group of librarians in a local school district. Recently, the researcher, as librarian at Flowertown Elementary School in Summerville, served with another elementary media specialist, a middle school librarian, and a high school media specialist on a district committee to advise the assistant superintendent about the acquisition of furniture, equipment, and materials for two schools under construction--one a middle school and one an elementary school. There were two formal meetings and several exchanges by phone or district mail.

At the first formal meeting, the questions of furniture and equipment were addressed. At this time, the librarians recommended not buying card catalogs for either school so that both schools could use automated systems that did not have card catalogs. The assistant superintendent did not know

anything about automated systems, and the library group explained briefly about this operating system. The assistant superintendent did not agree to consider using this method.

At the second formal meeting, the first orders for books and periodicals were discussed. Again, the librarians asked about using an automated system so that the books would be computer ready instead of processed with cards and pockets. This meeting ended with the books being ordered as before-shelf ready with cards and pockets.

Yet, during this same time, other events were unfolding which would later influence these two decisions. One event was the pursuit of an automated circulation system by several of the district's librarians. They arranged various demonstrations by vendors and invited district personnel to attend. Several librarians finally agreed to purchase an automated circulation system using their funds. This met with approval from the administrators involved even though it would mean much time and effort to bar code all the books already in existing libraries. Another event that influenced the final decisions was the sales approach by two book company salesmen who wanted to sell their products to the district for the new schools. Both companies offered to have bar coding furnished at a reduced rate and offered a volume price for books bought.

Eventually, one school was allowed the opportunity to try the automation method. The principal of the new elementary school agreed to divert funds for an automated circulation

system's software, and an IBM computer was moved from use in one of the school district's administrative offices until such time as the school itself could buy its own computer.

Federal money allocated as Chapter II funds was used by all schools in acquiring the circulation software program as a way to reduce the cost of the package. Federal money was also used to purchase some hardware, but most librarians had to use special incentive money from the state to furnish the hardware.

However, the problems of initiating automation technology are not over. One half of the school district is still not automated even for circulation. The other schools are having to postpone acquisition of the cataloging software because of funds. There is still no district-wide coordination of the effort to automate the other media centers, and no new guidelines have been established for future implementation. The question of online databases has not even been approached.

Still, these school librarians are trying to capture the benefits offered by automation technology to improve their services. They serve large populations of students and faculty in a limited time frame and on limited budgets.

Therefore, they have much in common with public and academic librarians. They, too, may be trying to capture the benefits of automation technology to improve their services while battling limited support and limited budgets. Perhaps what is needed is a coordinated effort to provide adequate materials, services, and information from all media specialists in South Carolina

whether they are employing automated methods or not. To this end, therefore, a consensus needs to be obtained about their attitudes toward this new technology.

Thus, it is important that the school librarians in South Carolina know what the other types of libraries are offering in the way of information storage and retrieval so that they can do the job of preparing their students for this future use. Also, if the libraries in South Carolina are not moving toward adapting to the new technology, this needs to be known. The problems cannot be acted on unless the answers to important questions are given first.

The answers to these questions will be important to all groups of librarians just as they will be to those in the school district in Summerville, South Carolina, who attempted to find librarians in the state who could give advice or hands-on demonstrations about automated library systems. These school librarians decided to automate their circulation systems but were unable to locate other media specialists who were using automated library technology. They proceeded with their decision even though they found little precedent within the state school library community. Not all this school district's group of librarians agreed to proceed with automation, either, for reasons of close retirement, inadequate funding, and unfamiliarity with computers. However, most of the group did proceed under the belief that this is a significant direction of pursuit owing to their perceived notion that all the state's

libraries are turning to automation technology either for part of their system or for the entire operation.

Therefore, the purpose of this study was to examine the state of automating procedures within the libraries of South Carolina. This entailed a two-fold approach. One part of the survey instrument showed present disposition and common operating ideas, and another part showed the attitude librarians have toward this new challenge.

LIMITATIONS

This two-fold approach was not without limitations, however. As with any study, there were certain things which could not obtained. Yet, the study did much if one realizes the constraints were held to a minimum. One major limitation was the lack of time and space to determine adequately which methods of library automation were in use or planned for future use. The author had to try to insure the chance of getting as many surveys back as possible and had to shorten the survey form and thus the time it would take to answer the statements. Questions of exactly what form of automation were currently in use or were planned for the future were deleted. Also questions of funding for present and future automation were deleted.

Another major limitation was the use of one state, South Carolina, as the testing field. South Carolina is not a large state with a large population center. It also has few urban areas. In RANKINGS OF THE COUNTIES AND SCHOOL DISTRICTS OF SOUTH

CAROLINA 1986-87, South Carolina's total population as of April, 1980, was 3,121,820. The three largest counties were Charleston with 276,974 people, Greenville with 287,913 people, and Richland with 269,735 people (RANKINGS, 1988). Yet, through concentrated effort, South Carolina has become a leading state for educational reform in the last four years through passage of the Education Finance Act, an Education Improvement Act, and minimum competency testing for graduating high school students. The size of the state is reflected in the facilities used to house libraries, the technology used to date, and its money available for public service programs.

Still, the state is rapidly changing with an influx of new industries and workers to bolster its economy and reshape its population. Therefore, the sample population should yield results indicative of a national or regional trend.

These two limitations did not adversely affect the study undertaken. Because the librarians in question work in the state of South Carolina, the findings are of major importance as they show the current direction of library service in South Carolina.

MAJOR ISSUES AND RESEARCH QUESTIONS

The prospect of employing automation technology in a library raises several complex issues. The use of the simplest computer program in a media center requires uncommon accommodation in comparison to any of the other tools librarians employ.

Thus, even though all school libraries in South Carolina fall under directed guidelines for minimum expenditures and minimum collection requirements, they all do not have the same budgets and do not equally feel under constraint to purchase certain materials. As long as the number of volumes is the accepted standard for showing library effectiveness, librarians will not feel compelled to use ever-shrinking budgets to buy computer hardware and software. However, if the most of the librarians indicate positively that spending revenue for automated materials is as important as spending revenue for traditional materials, the question of future computerized purchases will be answered.

Also to be answered is the question of which types of libraries need to be automated and in what time frame. As William Katz (1974) explains, "Regardless of organizational patterns or complexities, the parts of the system are interrelated and common to all sizes and types of libraries" (p.10).

A third question to arise involves who will make some of these decisions. If the state department of education needs to coordinate any of the automation efforts, the respondents will so suggest this answer.

Thus, the results of the study, particularly through the use of the survey instrument, will help the librarians in South Carolina to see the direction of library service as it is influenced by computer technology. There will either be a

significant difference in the attitudes of South Carolina librarians toward library automation as reflected in the number of libraries automated or pursuing automation or there will not be a significant difference. There will also be a significant difference in the attitudes of working professionals about who should automate and when. Furthermore, the direction of automation will be seen in the context of the curriculum statements. Either way, these findings will enable school librarians in particular to formulate future operating policies.

DEFINITION OF TERMS

The following terms will be used for the purpose of this study either in the strict definition given below or in the implied use of terms not yet found in a standardized dictionary.

Automation--" (1) The implementation of processes by automatic means. (2) Automatically controlled operation of an apparatus, process, or system by mechanical or electronic devices that take the place of human observation, effort and decision." (Spencer,p. 30)

bibliography--"(1) An annotated catalog of documents. (2) An enumerative list of books. (3) A list of documents pertaining to a given subject or author. (4) The process of compiling catalogs or lists." (Spencer,p. 34)

computer system--"The physical equipment and instructions, i.e.,

hardware and software, used as a unit to process data. It includes the central processing unit (CPU), its operating system, and peripheral equipment and programs under its control." (Spencer, p. 52)

data base--"A data base is the collection of all data used and produced by a computer program." (Spencer, p. 60)

data base management--"A systematic approach to storing, updating and retrieval of information stored as data items, usually in the form of records in a file, where many users, or even many remote installations, will use common data banks." (Spencer, p. 60)

data base management system--"A software system for managing the storage, access, updating, and maintenance of a data base." (Spencer, p.60)

hardware--"Physical equipment such as electronic, magnetic, and mechanical devices." (Spencer, p. 89)

implementation--"The process of installing a computer system. It involves choosing the equipment, installing the equipment, personnel training, and establishing computing center operating policies." (Spencer, p. 94)

information--"Meaningful and useful facts that are extracted from data fed to a computer. The meaning assigned to data by known conventions." (Spencer, p. 95)

information explosion--"The exponential increase in the growth and diversification of all forms of information." (Spencer,p.95)

information storage and retrieval--"(1) That branch of computer technology concerned with techniques for storing and searching

large quantities of data and making selected data available. (2) The methods used to recover specific information from stored data." (Spencer, p. 95)

information science--"The study of how people create, use, and communicate information in all forms." (Spencer, p. 95)

librarian--"One in charge of a library or trained in library science." (WEBSTER'S, p. 348)

library automation--"Application of computers and other technology to library operations and services." (Spencer, p. 99)

maintenance--"Tests, adjustments, repairs, or replacements that keep hardware and/or software in proper working order." (Spencer, p. 105)

media center-- A library or structure housing books, periodicals, audio-visual materials, and other information sources.

Media specialist-- A librarian or person in charge of a library or media center.

On-line--"A term describing equipment, devices, and persons that are in direct communication with the central processing unit of a computer." (Spencer, p. 138)

reference--"An indication, as in a book, of some other source of information." (WEBSTER'S, p. 501)

traditional--"Of, handed down by, or conforming to tradition." (WEBSTER'S, p. 633)

update--"To incorporate into a master file the changes required to reflect transactions or other events." (Spencer, p. 186)

user--"Anyone who utilizes a computer for problem solving or data manipulation." (Spencer, p. 186)

SUMMARY

The availability of information and the multiple ways of accessing information have created problems for various organizations, but library media centers, in particular, are having to wrestle with these problems. The technology is there, yet the funds and the knowledge for use may not be. Some media specialists are attacking the problem as a challenge while others are waiting for a better time or they are actively avoiding the issue. Unfortunately, since educational institutions are often seen as a continuum on a plane, school library media centers are the beginning, middle, and end of the spectrum. They cannot afford to disregard the progression of events surrounding the use of automation. They must seek to resolve the questions of who will automate, to what extent, and at what time while continuing to provide efficient, effective library service. One segment of the society will not be the sole provider of answers to all the questions raised by the clash of technology and standard library procedures. All involved will have to work cooperatively, and this will be done only if all the groups communicate needs and concerns with each other.

CHAPTER II
Review of the Literature

Part of the information explosion is the amount of literature devoted to the many facets of automation technology. This "Catch 22" proves to be the source of many of the problems librarians now face. The proliferation in journals, the availability of on-line databases, and the added resources of CD-ROM, laser, and video disks force today's librarian to have to make difficult budget decisions as well as personnel, equipment, and training decisions.

In looking at the current literature, one is almost overwhelmed at the amount of information. Articles in such publications as SCHOOL LIBRARY JOURNAL, MEDIA AND METHODS, and THE ELECTRONIC LIBRARY are directed mainly to media specialists. As a consequence, those seeking to improve library operations outside of this profession do not necessarily have access to these ideas. Perhaps this helps to explain why librarians often find themselves alone in trying to start new programs which will also require administrative agreement and purchasing power. J. Andrew Walcott (1984) expresses a similar comment from a conference on technology in education. One veteran teacher commented on the contrast between her willingness to look ahead and the lack of support she was getting from her administration (Walcott, 1984). If those in positions of authority and leadership could read some of the literature, they would find threads of common ideology and practical plans for implementation

about the problems of automation, retraining, patron and student use, and attitudes relative to future directions for effective library service.

PROBLEMS ASSOCIATED WITH THE TECHNOLOGY

Perhaps the problems of the technology within a library are foremost in the minds of all media specialists as this is the first obstacle to overcome. As Craver (1986) reminds those professionals, research studies suggest a clear pattern of disagreement between contemporary literature, standards, and actual practice. There is a time lag of ten years between the actual instructional role of libraries and the one espoused in the literature (Craver, 1986).

An even more serious problem is shown by Fayen (1986) to be a devaluation of the services of a librarian. She states that it is a well-intentioned but self-defeating move for libraries and librarians to offer training programs that enable users to locate materials by themselves. The result is patrons who may think using the library is easy and devalue the services the librarian provides. Fayen continues that librarians must not merely keep up with changes in new technology but must answer the question "Does anybody want what we are offering?" (Fayen, 1986).

However, what is being offered is the crucial point. The library historically has adopted what the public requests. This method of operation is generally the motivating force behind the direction of library services. Harmon (1987) reports that

available classroom and home information resources surpass those in the library. There are entire corporations growing rich selling information services to individuals for home use. He continues by saying that the children librarians are serving are the first generation of the information age. Media specialists must plan programming for them using tools and collections of their generation. They should not abandon responsibilities for involvement with computers because the technology is unfamiliar, expensive, and/or complex. There is an unprecedented opportunity to move to the forefront of library programming using technology (Harmon, 1987).

Meanwhile, Howard Resnikoff, Harvard University's Associate Vice President for Information Service and Technology as the keynote speaker at ALA and LITA's first national conference said, "You must find an interactive substitute for the book...Archives will be so hugh [by the year 2000] the only access will have to be by machines" (Nyren and Berry, p.2018). He warned librarians to create a role for libraries in a computer future or the institution might not survive (Nyren and Berry, 1983).

At the same conference William Potter of the University of Illinois, Champaign-Urbana, (Nyren and Berry, 1983), told of seeing trends toward linked and integrated online systems, more 'intelligent' microcomputer-based terminals, shorter records, and more attention to local information in online catalogs.

The panel at the conference (Nyren and Berry, 1983) stated that automated life is one of constant unending change,

culminating every seven years with complete replacement of the system. The asset is the data, not the hardware (Nyren and Berry, 1983).

The significance of these similar views is that they are being echoed in other conferences and in other forums. Karen Horny (1987) says there are already questions about the role of the librarian as a direct provider of materials versus a trainer of the information seeker. It may be more important to have capable generalists who understand database search strategies and have broad familiarity with accessible resources. As databases become more extensive, the librarian will become an intermediary vital to the person in search of information (Horny, 1987).

Swan (1988) continues this train of thought as he says that it is not enough to be content with a future as information workers for those who cannot help themselves. The new information machines require those entrusted with them to conceive of information in ways both physically and intellectually different from that stored on paper (Swan, 1988).

Another component of this redefined role of librarian is that of teacher. Adams (1988) says that since computer catalogs and other automated services are used by the general public (i.e. all ages, all educational levels, and all cultural backgrounds), it can be claimed that libraries provide the most democratic access to computer technology available in our society. Limited though this may be, many people are experiencing their initial, hands-on contact with sophisticated computer technology within a

library. She continues to say that this gives the librarian a wonderful and frightening responsibility. The library can dispel fears, eliminate ignorance, and promote fascination for a technology which dominates our culture (Adams, 1988).

LIBRARY APPLICATIONS OF THE NEW TECHNOLOGY

DeGennaro (1984) comments on this new role of the library by stating "technology is not making libraries obsolete; rather it is revitalizing them and expanding their capabilities." He adds that faculty and administrators must accept and support a growing need to spend money, not only to purchase books and journals, but also to pay for computer systems, telecommunications, network participation, and various other fees. The major impetus of his philosophy can be summed up by his statement that academic and library leaders should join forces to make a compelling case for a new federal program to retool libraries for an information society. He concludes the following:

> The job of librarians is to guide their libraries through a major transition from the collection-centered institutions that they are today to the access and service-oriented institutions that they must, and, I believe, will become in the next two decades... In the past, the pressure to automate the library, to convert its catalog to machine readable form, and to provide online access to it came almost entirely from the librarians themselves.

> In the future, it will come from computer-wise students and faculty. (p. 1204)

Craver (1984) sees the school library media center as experiencing some of the same changes. For example, the use of commercial databases by secondary students is not futuristic. Students at Montgomery County, Maryland, access DIALOG, ORBIT, and the NY Times INFORMATION BANK; students in Philadelphia have been taught to search ENERGLINE, ENVIRONLINE, MAGAZINE INDEX, and HISTORICAL ABSTRACTS (Craver, 1984).

Other applications of automation technology include the following scenarios. Albuquerque, New Mexico, has had automated ordering, cataloging, and processing for its 108 school libraries since 1963. Madison, Wisconsin Public Schools have had the same processes for 39 schools and four centralized professional libraries since 1967. In 1977, the West Bend, Wisconsin Joint School District made printed book catalogs for its 11 school districts and in 1981, added ILL in all district, public, parochial, and private schools (Craver, 1984).

Oak Creek, Wisconsin Public School District composed of eight schools designed a computerized system for producing bibliographies, providing audio-visual and book catalogs, and simplifying basic record-keeping and ordering. St. Johns Parish School Library in Tampa, Florida, began an on-line student access catalog that features overdue and processing as well as searching. As of 1980 there were nearly 30 school library

systems using OCLC. (Craver, 1984)

These various scenarios are being repeated in all parts of the United States. Craver (1984) reports that the economic future of school libraries will not be bleak. The government may be forced to continue funding until the achievement level of the nation's children has risen. Education for elementary school librarianship may still be concerned with children's literature, learning theory, and management of a-v materials, but secondary school librarianship must concern itself with online database searching, networking, cable tv, microcomputers, and CAI if it is to remain viable (Craver, 1984).

Once again, the question of training resurfaces. Craver (1984) says that unlike the older clientele of academic, research libraries, theirs [school librarians] will need to be educated as to how to search and use this new technology for maximum results. Twenty-one percent of all elementary schools have microcomputers, 67% of which are stored in the media center; 30% of junior high schools have micros with 71% housed in the library and 60% of the high schools with 42% located in the library. With librarians trained in advanced reference, database searching, and networking possibilities, there will be no limit to students' access of the knowledge base. Craver concludes," School librarians will serve as the interface between a child's ignorance and a treasure of knowledge" (p. 28).

Of course, Craver and others are studying the direction of library service in general, on a nation-wide basis primarily, and

in an attempt to understand broad trends. Individual states have personnel who are involved in studying the direction of library service as found within their specific states for the planning and organizing for future implementation within the school curriculum. This is true in minor proportion in South Carolina . As reported in LIBRARY JOURNAL of 1983, "The South Carolina State Library plans to advance statewide goals and in the process aid small and medium sized libraries in need of automation advice" ("South Carolina," p. 2202). In four parts, step one is to assist all libraries deemed economically feasible to join SOLINET/OCLC. Step two is to assist major university and public libraries to complete retrospective conversion. Step three is development of a state union catalog, probably a COM catalog of non-OCLC holdings. Step four is development of local area networks or clusters (Callahan, 1984). However, much has to be done before any of these steps can be achieved.

As a case in point, Splittgerber and Stirzaker looked at school library media services in South Carolina from the spring of 1985 to the spring of 1986. The first significant finding by Splittgerber (1985) was that 27.65% of librarians spent 71-80% of their time on print services as opposed to 30.41% of librarians who spent 21-30% of time on non-print services, and 49.77% who had no response to the amount of time spent on computer services. The second significant finding was that 43.32% of librarians felt that computers should be integrated with print and non-print services as opposed to 40.55% who felt a separation of services

was desirable. The reasons for wanting integration include 1) the feeling that a computer is another type of media, 2) the computer would be accessible to users, 3) there would be better security and inventory, 4) the computer is a part of media services, and 5) students need to see computers used in all areas. The reasons for wanting separation include 1) there are no computers available, 2) a separate room and separate coordinator are needed, and 3) there is no time (Splittgerber, 1985).

Other findings are of interest, too. The majority feel that media specialists have the responsibility for computer services. The majority feel they are responsible for the selection and purchase of hardware. An equal number feel that media specialists do and do not have the responsibility of maintenance. The majority are in favor of assuming the responsibility for training students on the use of computers as well as training teachers (Splittgerber, 1985).

These results are indicative of the direction of library service in South Carolina, but Splittgerber and Stirzaker followed up with two other studies to further show the trend taking shape among the state's school library media specialists. Important in these responses is the fact that 66.36% of the librarians surveyed had no hours completed in computer courses. Twenty-three percent had not attended any workshops on computers in the previous three years; 41% had no response to the number of workshops in print and non-print material during the same period.

Splittgerber and Stirzaker's conclusion is that South Carolina has many rural schools with low enrollments. Thus the movement toward computers at the grassroots has been minimal (Splittgerber and Stirzaker, 1985).

Further study by these two (1986) confirms these findings. In a second survey sponsored by the University of South Carolina College of Education, they found public school librarians/media specialists to be uncertain about the direction the profession should take on the inclusion and integration of computer services given current restrictions on building space. They concluded that continued attention needs to be focused on insuring that computer services become integrated into libraries/media centers as "the quality of public education in years to come may well hinge on the amount of emphasis placed on these important services" (Splittgerber and Stirzaker, p. 29).

Perhaps the leadership of the South Carolina State Library will help to ease this integration of services. The public libraries are being provided IBM-PC's as part of a networking effort which is supposed to be a multi-system statewide network by 1989. Some of the numerous automation vendors operating in public and academic libraries already are as follows: Burroughs, CLSI, Classic, Data Research, Dataphase, Dynix, LIS, and NOTIS. Oscelot is being used at four technical colleges (Landrum, 1986). Thus, the state's libraries are employing a variety of software and hardware avenues as they attempt an integration of automation procedures. One major strength

of the South Carolina Library Network plan, according to Landrum (1986), is the flexibility to accommodate developing technology and meet the needs of South Carolina's libraries and its citizens.

APPLICATIONS OF NEW TECHNOLOGY WITHIN THE EDUCATIONAL SETTING

Consequently, the specific needs of the libraries and the citizens they serve will be foremost in the planning by these professionals whether they are employing automated or non-automated techniques. The trend clearly seems to be that planning will have to include use of some form of technological innovation.

Hence, along with this planning of how to use the automation, there must be planning for instructing library staff members as well as library patrons in its use. This may entail only showing the library staff how to run an automated circulation system, but eventually some clearly defined avenues of instruction will have to be established so as to have a smooth-running system. Unfortunately, not a lot has been done in the area of library instruction with new technologies (Schobert, 1983). A fundamental issue is that of different ways of learning--rational or deductive, empirical or inductive, and metaphorical or analogical. Most educational software does not accommodate different ways of learning, according to Schobert (1983).

LIBRARY INSTRUCTION OPTIONS

Librarians have dealt with this problem for many years in a non-technical environment. They have been expected to introduce library usage skills to large groups of students or patrons without having an appreciable base of knowledge or understanding of the learning characteristics of these individuals. The "library tour" as a general orientation is unsatisfactory because students are unmotivated, students forget important skills, and the level of library sophistication varies widely (Adams, 1980). The use of audiotapes is an alternative. They are inexpensive and easily updated plus they appeal to a generation oriented to sound and earphones. Other options include tutorials, programmed instruction (workbooks), and computer-assisted instruction. Tutorials are more structured than the others; student procrastination, less teacher control, and grading are problems with programmed instruction; computer-assisted instruction costs more and has limited applications now but enjoys more student involvement than the others (Adams, 1980).

Kirkendall (1980) concurs and adds that "unless programs are well thought out and based on actual need, instruction can often appear monotonous, repetitive, superficial, more exuberant than reasoned, cliche-ridden, and based on naive assumptions" (p. 34).

She adds that the library school curricula needs to include teaching about instruction in library use as schools are not equipping graduates with this knowledge and skills. This leads to a familiar scenario for most media specialists. Skills

are taught as separate, isolated units. Kirkendall (1980) says the use of the library and application of search strategy is taught not in isolation but in context with the user's lifelong experience with information.

Historically, this context has been as a student in school. The major thrust of most library media programs in the early years is reading, viewing, and listening experiences, according to Bhalla (1987). This is later superseded by reference skills as students progress in elementary school preparing for middle school where information-process skills are emphasized (Bhalla, 1987).

However, the ways in which "library skills" were taught are not perceived as being effective. This should not continue in the presence of the new skills that patrons will be needing. Berkowitz (1987) notes that students are finding easier access to information through technological and human support systems. Media specialists can have a life-long affect on students by teaching them how to use information. Bloom's Taxonomy in the cognitive domain should be the context for developing instructional programs. Berkowitz (1987) adds, "Library media specialists need to make proactive, critical decisions to teach skills that are transferable across the entire curriculum spectrum" (p. 50).

Lawrence (1980) offers a plan for library instruction partly owing to the National Enquiry on Scholarly Communication that foresees full and necessary development of online bibliographic

systems that can be searched directly by the primary user without the intermediary librarian. Her campaign is a two-pronged approach--delineation of the structural framework of library research and development of portable and flexible online systems that can serve the varied requirements of librarians and patrons. Part of this will be to present students with the principles and patterns underlying the information flow in any field and the types of major reference tools and research libraries (Lawrence, 1980).

However, database searching satisfies only a small part of users' needs. Faculty seminars on new developments in the library are necessary to ensure that educators on campuses know how to use information resources and help the librarians decide what students should be learning about them at each stage of their education (Lawrence, 1980).

COOPERATIVE PLANNING

This relates directly to one problem that is inherent with library skills instruction in the past. There was and still is little cooperative planning between teachers and librarians. The argument in support of bibliographic instruction rests on the value of the bibliographic knowledge of the student and not on the library's need to equip students to perform basic searching operations without assistance, according to Freides (1983). The future of bibliographic instruction in the context of online reference services may depend on the extent to which librarians

succeed in replacing mechanistic, procedural routines as the focus of instruction with an intellectually coherent conception of information seeking that can explain what the process means (Freides, 1983).

Quiring (1987) adds to this description that students must acquire not "library skills" or "computer skills" but rather computer literacy to solve their information problems and to cope with the demands placed on them by an information society. Teaching will become more important as students learn not so much how to find materials but how to evaluate them, how to find the best and the most relevant information, and how to become intelligent, discriminating consumers of information (Quiring, 1987).

Two distinct problems that pose a deterrent to these goals, however, are stated by Schub (1988). These common problems are course objectives which are not clarified and deciding which ideas need to be communicated. For course objectives, students should be able to analyze a research problem, suggest types of tools that would be useful, find appropriate sources using a subject approach, and document their findings. The ideas that should be communicated to students include using reputable authors, deciding about the purpose for gathering or publishing information, using classification systems, and formulating questions (Schub, 1988).

Luskay (1983) lists elements of a media program essential to the information function that are similar to those proposed

by Schub and says,"Information management skills are requisite to success in an information age and must be taught to students beginning at the elementary level." (p. 432) He advocates traditional skills such as use of encyclopedias and indexes as well as newer skills related to a-v and computer technologies be taught but not in isolation from the curriculum. To support this argument, he discusses a significant study conducted by Lucy Anne Wozny. She studied 53 honor students in a ninth grade science class and found that 92% use the school library, 87% use the public library, and 74% use a home library. Only 14%, though, use only one type of library (Luskay, 1983).

Of course, this sampling is not necessarily indicative of students across the United States, but the results do hold some considerations that must be addressed by librarians in all types of media centers. Hunter (1984) points out that as interest grows, more and more libraries will have to cope with patrons who want to use the information systems available. There are three reasons for this. One is an increasing exposure and heightened awareness. Two is the increasing spread of microcomputers. Finally, the service searchers and database producers want to sell to a potentially larger audience (Hunter, 1984).

She offers seven steps for librarians facing increased interest from patrons. They are as follows: be prepared to explain everything from indexing to telecommunications to database management; find out what kind of search he wants and determine which database to use; point out the variety of files

and systems available; show how some work; warn of costs; suggest to start with KNOWLEDGE INDEX or BRS/AFTER DARK to get a feel of searching; and finally, point out that services have certain limitations (Hunter, 1984).

In addition to these tips, librarians are also going to need tips for developing their own singular approaches to database searching and other methods of applied technology. San Bernandino Public Library found five distinct ways to make their patrons aware of the potential in automation. They created an in-house public access microcomputer lab to be used with the city and county school districts. They offered on-going education classes by the library staff. They accessed a program consisting of DIALOG and LOGIN. They had a 24 hour 'communications link' between the public library and the community. They had a career counseling microcomputer service (Davis, Lambson, and Whitney, 1987).

However, as much as the total role for educating the public of the benefits and inner workings of the automation revolution falls to all those applying the technology, the major person responsible will continue to be the school librarian. For this reason alone, if for no other, the school library media specialist must begin now to plan and organize how to teach and what to teach. One criticism to date has been that school librarians have spent too much time teaching specific reference sources and too little teaching reference and information skills ("Are you teaching," 1987).

STATE DEPARTMENTS OF EDUCATION

Several state education departments have tried to address this criticism by establishing state directives. Among these are Minnesota, Georgia, Maryland, and Pennsylvania. The philosophy found in Georgia's curriculum guide states the following:

> Media skills encompass traditional library skills, thinking skills, study skills, research skills and production/presentation skills. These skills involve the processes of finding, evaluating, and using information. The skills used in information of different disciplines and to help students establish relationships among them...Therefore, the most effective approach to instruction in these skills involves cooperative planning by teachers and media specialists in all subject areas at every grade level (BASIC CURRICULUM, 1985, p. 45).

The philosophy found in the curriculum guide from Minnesota echoes that found in Georgia's. It, however, does establish three broad stages of learning skills in educational media and technology. The first is accessing information; the second is processing information; the third is communicating information (MODEL LEARNER OUTCOMES, 1986). Of significance is the statement which follows:

> It is imperative that the teaching of media skills be integrated with relevant subject

> curricular topics rather than taught in isolation as a separate, unrelated curriculum. When teachers and media personnel share the responsibility for planning, teaching, and providing opportunities for students to practice, the integration of library media skills instruction into the curriculum will occur at the most appropriate time and will ensure retention by students (p. 29).

The significance of this statement is that media specialists have been saying the same thing for years, even before automation technology became an available instructional tool.

This is shown to be an important statement also in the Pennsylvania curriculum guide. PENNSYLVANIA ONLINE (1987) quotes the number one recommendation that the National Commission on Libraries and Information Science (NCLIS) submitted to President Reagan to be "A completely new approach to the school curriculum whereby children in addition to teaching computer skills from an early age, learn to use libraries and learn how to find and use information effectively..." To accomplish this, in part, several suggestions are offered. One is to create a small database using a commercial database program such as PFS FILE, DBMASTER, DATA PERFECT, or DBASE II. Another suggestion is to use a small, commercially available single disc database such as ERIC's MICROSEARCH. A third is to use word processing programs to show database searching. The final one is to access a simulated

database.

Similar objectives are outlined by Montgomery County, Maryland. Instructional objectives are defined as "those which enable students to locate materials, to find information within materials, and to produce media as a means of communication and creative expression" (Instructional objectives, 1987, p. i).

When these objectives are directed at the use of an online database, DIALOG, they become the eight skills that follow: identify parts of a database, create a database, identify how access is provided to information stored in a database, identify descriptors for the topic being investigated, access online information, distinguish among databases, select an appropriate database for a particular purpose, and determine the characteristics of a specific database (Pruitt and Dowling, 1985). One of the reasons for incorporating this online technology is that online searches help solve the problem of shortcomings in the library's collection.

However, Pruitt and Dowling (1985) offer three basic implications for applying this type of automation capability. One is online information retrieval skills. The media specialist will continue to incorporate online search strategies into the library skills program. Students will be taught basic concepts of online searching as they are taught traditional card catalog and specific reference works. Students with access to online information retrieval will certainly expect similar services at public and academic libraries. Some will access from home

computers; others will still expect a trained intermediary to conduct a search in a database that is complex or not well-known. The second implication is reallocation of expenditures. More money will have to be allocated for searching costs than for buying print versions. The third implication is the side benefits of using online databases. The use of a database such as READY REFERENCE TOOLS will improve the answering of reference questions (Pruitt and Dowling, 1985).

Another implication mentioned by Butler (1983) is that of public acceptance. Online reference systems such as DIALOG are becoming resources used in daily reference work at public and academic libraries, not just special and corporate ones. The trend is clear: the public likes what it gets from the replacements for card catalog and index shelves. Still, considerable user training and education is required (Butler, 1983).

McClintock (1983) agrees that acceptance is going to be a positive development. Perhaps the most important and useful assumption one can safely make based on this study's findings is that most clients will have positive attitudes about the computer catalog as a library tool. Trainees will find the computer catalog to seem quicker and easier than manual searching, to deliver a lot of information, and to be high in search satisfaction (McClintock, 1983).

She also offers a set of priorities for any computer catalog that include having the most comprehensive database possible, as

many terminals in as many locations as possible, an instructive program which offers on-demand help right at the terminal, scheduled sessions, signs, command charts, brochures, and expanded searching capabilities (McClintock, 1983).

Of course, McClintock is speaking of the ideal, but the ideal is not the reality of most school libraries or other types of libraries. Each media center will have to develop a user program contingent on its resources, present and future. A central question, though, is asked by Nielson (1985), "What will be the components of a model program to instruct users of an online catalog?" Nielson (1985) lists four important elements to consider that follow: there is no perfect online catalog system now; the online user interface may not accommodate all user needs at present and may not ever; the pace of change in improvements may be slow; and some effort at systemization of instruction seems worthwhile.

Once these considerations are established, each library needs to set its own objectives. This should be done in the four steps of formalizing the learning objective, enabling the objectives, evaluating the objectives in terms of behavioral and cognitive processes, and explaining the technical and logical aspects of the structure needed for understanding (Nielson, 1985).

It is also noted that association between an online catalog and a card catalog is helpful. They are both a means of accessing a library collection. The most obvious difference is

the interactive searching capability of an online catalog. Of note as well, most online catalogs use singular searching techniques and command languages (Nielson, 1985).

Thus, it is increasingly important to develop skills which allow the user to move with ease from one online system to another. One way to accomplish this, according to Nielson, is to present information about different systems in a similar fashion. The more generalized approach would most likely begin with explorations of record structure and file organization as elemental building blocks and then go on to describe types of indexes to files and commands necessary to access the indexes. The challenge is to take steps to design an instructional program that will stimulate the users' interest (Nielson, 1985).

Ann Lipon (Van Pulis, 1985) speaks to this point when she describes a system in use at the University of California called MELVYL. She relates, "Teaching MELVYL to all library staff has many benefits. It creates a more competent, more self-confident staff, who, whether or not they need the information in their daily jobs, feel more connected to the library system--which, of course, is good for morale. It also increases the likelihood that a user's question will be dealt with directly and effectively by whatever staff member handles the question. And, finally, it creates a ready pool of instructors, enabling the library to launch and sustain a good user training program." (Von Pulis, 1985, p. 5)

What should the library staff know about the online catalog?

There are four areas--database content, communication required, display content, and change. Factors that relate to these areas, says Van Pulis (1985), are staff needs (individual and unit level), staff turnover, and the organization's structure and size.

Of course, these ideas of what the staff should know and what affects the performance of the staff training will be of interest to all library personnel. The same things will apply to the patrons. Unfortunately, many libraries are unable to cope with this aspect of incorporating automation technology due to the overriding questions of money and qualified trainers. Tschudi (1983) says that too many schools continue to teach traditional librarianship in a non-traditional, rapidly changing world. There are not too many on-line educators as this is a first generation industry. Therefore, Tschudi (1983) recommends before on-line training begins that library schools develop a course or incorporate into a course a program that covers the theory of searching, the limitations as well as the capabilities, searching compared to traditional methods, reference and bibliographic tools, how files are created and loaded, how systems are structured, familiarity with terminology, and discuss why you do what you do. Finally, have someone other than a computer programmer set up a dummy system of simulated databases (Tschudi, 1983).

However, if there are no library schools offering training through courses or workshops, the school library media specialist

still needs to understand search strategy and technology before teaching online searching to children. Several books mentioned by Lodish (1986) will serve as starters. They include ONLINE: A GUIDE TO AMERICA'S LEADING INFORMATION SERVICE by Steve Lambert, AN INTRODUCTION TO ONLINE SEARCHING by Tze-Chung Li, and Roger Palmer's ONLINE REFERENCE AND INFORMATION RETRIEVAL. These may be extremely technical, offering more information than is needed by school library media specialists in grades K-8, but ONLINE SEARCHING: THE BASICS, SETTINGS AND MANAGEMENT edited by Joanne Lee may be helpful (Lodish, 1986).

Yet, for those librarians who do not have online services because of cost or other restraints, there is a solution. Addison Wesley has provided a new and simplified online service called EINSTEIN ("Einstein: a solution," 1987). It provides access to 90 databases available through DIALOG, BRS, and others and has selected those most appropriate for use by students and teachers. It does not assume much in the way of skills; options are chosen with a single keystroke; "help screens" are provided; it is cheap with a fixed price of $4.50 per search or $3.50 per search with a $.12 per minute telecommunications charge; searches are limited to eight citations plus one full-text article; excellent documentation is available; the service may be ordered as sets of 50 single-search passwords with separate telecommunications billing for $162.50 or as sets of 50 single-search passwords with telecommunications included for $225.00; it requires no equipment other than a micro, a modem, outside phone lines, and

telecommunications software ("Einstein: a solution," 1987).

Another instructional method used in Montgomery County Public Schools, Maryland, will address a time and cost restriction problem. The program, funded by a grant, started as an 18 week semester internship each afternoon after school for two hours to introduce students to software evaluation, database construction, word processing, programming, computer graphics, and online information retrieval. It was later shortened and the focus shifted to hands-on information retrieval because the students were able to use microcomputers at school with courses offered in the curriculum so that the students' expertise rose to a level where the "teachers" became the "tutees" except in the area of online information retrieval (Pruitt and Dowling, 1987).

However, librarians may have to request help from other school professionals to be able to prepare students for on-line searching. Dr. James K. Oliver of the University of Delaware requires freshmen students to clip articles on a particular topic over a period of time from the NY TIMES and then write a thesis. The purpose is "to develop the critical thinking and writing skills he found he could no longer assume were being taught in high school (Minnich, 1986)."

This became known as The Clipping Thesis and served as a basis for a pilot project in which three library media specialists would introduce students to database searching. This project successfully taught students how to access large amounts of information, but they lacked skills for critical thinking

necessary to help evaluate the accuracy and worth of the mass of information located (Minnich and McCarthy, 1986).

One of these media specialists joined with three teachers to expand and change The Clipping Thesis project in an effort to help students develop these much needed critical thinking and writing skills (Minnich, 1987). Several ideas emerged which should be noted by practicing library professionals. Content linkage of four disciplines helps students learn to think critically across subject areas. Students benefit from the reinforcement of skills common to a variety of disciplines. Having the library media center as part of the process demythologizes the library media center. Finally, it is important that not just a history paper is done in the library media center, but the library media center is used by all disciplines always (Minnich, 1987).

Craver (1985) draws some of the same conclusions in a study conducted with high school students at University High School in Illinois. Craver says the following:

> If these events are any portent of the future, it would seem imperative that high school librarians initiate some form of classroom or computer-assisted instruction for college-bound students...These positive results would appear to indicate that not only can high school students benefit from such a course, they can be taught to form their own information searches

in the future (p. 137).

On the other hand, elementary students can also benefit from these same methods. Minor (1986) tells of using online catalogs with elementary students in grades one through six in Edmonton, Alberta. The results show greater student interest in and use of the library, and a dramatic increase in the use of the automated card catalog over the traditional type, and more use of the nonfiction material by the students in grades one through three (Minor, 1986).

In a similar study of a Colorado elementary school over three years, the librarian recorded three distinct advantages (Minor, 1986). One is that it is easier to teach subject, author, and title concepts using the microcomputer catalog than to teach usage of a traditional catalog. Another advantage is that younger students use the computer catalog more easily than the traditional card catalog. A final one is that both groups of students use the nonfiction section more than in the past (Minor, 1986).

Waddle (1988) reports that there may be a major penalty to the use of online searching, though. The demand for on-line searching was so great that the library had to be remodeled, five new phone lines had to be installed, and more stations had to be planned. For the problems solved, others were created. One of these is about costs. Will students pay a fee or will it be free? Her real concern, however, is "Are colleges and public libraries going to offer this service to students and patrons?"

(Waddle, 1988).

AUTOMATION PRINCIPLES AND PRACTICES IN SOUTH CAROLINA

Professionals in South Carolina are also dealing with this concern as well as many others. Ann White (1988) believes that one way to provide a better quality education is to improve access to information that adequately supplements curriculum objectives.

Dan Barron (1988) sees this improvement in the access to information as a role of the school library media specialist or school librarian. As radical changes are taking place as part of the shift with teachers teaching beyond ditto sheets and textbooks with activities for the development of higher thinking skills, access to the library media center resources and the services of the school library media specialist is essential.

Perhaps this pattern of thinking is becoming prevalent at all levels of libraries in this state. In the fall of 1982, the staff of the Dacus Library at Winthrop College in Rock Hill, South Carolina, implemented a program for students in advanced placement courses in high school. They were issued cards which allowed them access to all services, except circulation. It was irrelevant that the students eventually attend Winthrop College. The purpose of the program is that they be able to function efficiently in an academic library. This experience was repeated in the fall of 1983 when a director of programs for gifted fifth and sixth graders requested a similar arrangement (Davidson,

1985).

Of course, accommodating both elementary and secondary students in an academic environment will require different approaches. Still, some of the same principles will be applied. Davidson (1984) reports on a South Carolina Library Association workshop of April, 1984, where academic and school librarians discussed bibliographic instruction. Jean Presseau, Student Services Librarian at Presbyterian College, spoke of teaching library skills relevant to a student's needs and capabilities throughout his college years. She reported dropping a one hour library methods course in favor of course related instruction.

Drucie Reeves of Brookland Cayce High School stressed the same thought. Their [Brookland Cayce] students received some type of instruction related to their assignments. The key to a strong bibliographic instruction program is a close working relationship with the teachers (Davidson, 1984).

Another goal was espoused by these same librarians. That goal is the making of lifetime library users especially for the student who will not go on to college. These patrons should feel comfortable in their public or college library (Davidson, 1984).

Accomplishing this goal is not going to be easy. A study for the Aiken Regional Campus of the University of South Carolina in 1968 showed the school's interdependence with the general community into the specific area of the university's relationship with the secondary schools. Central to the mission of both groups is the easing of a student's passage from high school to

college (Hollifield and Lawrence, 1986). One problem with this transition is student lack of appropriate library skills. Junior and senior high school students are puzzled by different classification systems and have trouble formulating search strategies and locating materials. Because of ever changing populations and not being able to offer lectures to every high school class, the library staff decided that the pertinent information would be most efficiently and productively disseminated to the local English teachers, school librarians, and language coordinators (Hollifield and Lawrence, 1986).

Therefore, the common consensus about the direction of library services either in a particular state or across the nation is that of coordination with other personnel and relevance to students' needs. Librarians responding to the challenges outlined in A NATION AT RISK (Statistics of Public, 1987) recommended the following:

> Strenghten the curriculum by teaching effective use of information. Invoke more rigorous and measurable standards to test the quality of library media services and resources in every elementary and secondary school. Open school library media centers and public and academic libraries to the fullest extent possible. Develop collections needed to inform educators and librarians about developments, concepts, and practices in education and information

> science. Provide meaningful instruction to teachers and administrators about the role of library media centers. Assess the ability of the library media center to respond to the urgent need for excellence in education by defining information-seeking skills and behaviors, assessing the current state of library media centers, defining the retraining necessary for specialists, and devising marketing strategies for all libraries. Provide strong advisory services at all levels (p. 39).

For all these recommendations to be incorporated into a national educational and/or library framework, positive attitudes and careful planning become major assets. This is particularly true if technology is to be the valuable tool in the future that it does not seem to be now. The availability of different technologies in public and private school library media centers varies by school size, level, and orientation. Technologies are more widely available in public schools, in secondary schools, and in larger schools. On-site and off-site data retrieval for teachers or students is noticeably lacking in nearly all schools. Only one-fourth of schools have a computer for use in the library media center (Statistics in public, 1987). These observations are borne out by the numerous variety of tables and graphs given in this government publication. Of particular significance for

the purpose of this study is the fact that in South Carolina 36% of the schools have computers for use of library/media center operations as opposed to 27% of all schools nationwide that have computers for use of library/media center operations. Nationally 21% of these are elementary schools, 37% are middle or junior high schools, 43% are senior high schools, and 22% are other or combined schools (Statistics in public, 1987).

SUMMARY

As suggested in the review of the literature, the future of information storage and retrieval hinges on the specific planning library media specialists, educators, and the citizenry in general promote at this time. For this and other reasons, those in decision-making capacities need the facts to help with the crucial choices that they will eventually make.

The facts may come from observing national trends, from surveying select groups, from reading current literature, or from using all these methods. However, the current literature is saying clearly and extensively that the information age has arrived and requires immediate attention. Any enlightenment in this arena should be welcomed and shared by all concerned. A united effort is that most desired and that which will yield the most powerful results.

CHAPTER III

Research Design

ASSUMPTIONS

Today the library media specialists working in the various types of libraries are faced with the decision about the use of technology in its many formats and its eventual influence on their institutions. Professional librarians need to think about the future and plan for it. Those librarians expecting library automation to be a part of library services in the upcoming years should plan budgets and new programs to incorporate technological developments. Those librarians not expecting or wanting library automation to be a part of library services in the future should plan for the future without considering using technological developments. However, those librarians who are not anticipating the use of library automation in the future may have to explain their reasons for not using this technology to library boards, government bodies, and/or patrons. Eventually, the reasons for wanting or not wanting to make use of these new tools will be shown to be in the attitudes of the practicing librarians given that the money, staff, and collection requirements at all the same type of media center throughout South Carolina are proportionate. As Lawrence (1980) concludes:

> 1.) The machine itself, the computer terminal alone, provokes the greatest change in patron interaction with librarians and

library services.

2.) If changed perceptions are to be converted into actual changes in status and duties of libraries, librarians must actively pursue new possibilities of this newfound image maker (p. 140).

However, some librarians are foregoing implementation of these automated tools now because the factors of staff, budget, and collection are not equal, but libraries in the past have operated at different levels in spite of those same factors. Traditionally, the difference in library operations was simply the type of library itself. Academic libraries filled one gap, public libraries another, and school libraries another. The major difference in the future, though, will be the use of computer technology as it represents such a challenging addition to any library's capabilities for service. The attitude toward this computer technology will finally have to be reconciled with the reality of the information age and technologically sophisticated world in which all libraries operate.

Therefore, those librarians who work in the public elementary and secondary schools are faced with important concerns. One of the concerns is how many of the state's media centers are using some type of automation. Another concern is which type of media center should be automated and in what amount of time. Another concern is whether the use of automation

and its influence on learning styles should be included as a part of the basic post-secondary curriculum.

With these concerns apparent, it is time for media specialists in South Carolina to start asking important questions. This study may be a beginning of the answers for those questions as it tries to determine the amount of automation already in existence in the state and the attitudes of those working professionals who are facing decisions about computer technology. This is especially true if Nyren's (1983) prediction that libraries are headed for competition and conflict is correct.

Nyren and others will have a case if library automation proves to be falling behind expected levels. If South Carolina's public and academic libraries are not using automation in some form in at least twenty five per cent of the institutions and if the public schools are not using automation in some form in at least the same percentage, one can easily see that competition and conflict are going to occur because in the fall of 1985 twenty-seven per cent of all schools reported having computers for use of library/media center operations (STATISTICS OF PUBLIC, 1987). If these figures have not increased significantly, the attitudes of those directing library policy will certainly need to be examined.

HYPOTHESES

Using these assumptions, the researcher developed the following hypotheses:

> The number of public and academic libraries employing library automation will be the same as the number of school media centers employing library automation, and the attitude scores for both groups will be the same.

The hypotheses to be tested were stated as follows:

> There is no difference between the means of the two populations surveyed in use of library automation.
>
> There is no difference between the means of the attitude scores for the school librarians and the means of the attitude scores for the public and academic librarians.

RESEARCH QUESTIONS

Because there is such a divergence of materials that can be classified as automation technology and because these materials cannot be employed as simply as other library resources, automation raises several questions of future intent. One question involves the major standard to measure library effectiveness--the number of volumes of books housed in a collection. Librarians who see budgets shrinking in the face of automation technology proliferation may not feel compelled to buy computer hardware or software. However, a librarian will have to use funds to purchase information either in the format of a CD-

ROM or video disk, as a subscriber to a database offering off-site access, or as print information in book, periodical, or journal format. If the intent is to incorporate materials of the traditional and automated formats, the responses to the survey reflected a positive score for those statements.

Of equal importance is the question of intent to automate. The number of media center specialists responding to the survey as being in an automated setting is important, but also of importance is the number of positive responses given to the statements about who should automate and when.

The third question of intent is that of the place automation technology will require as part of a curriculum. The results of the responses to statements in the survey about curriculum suggest how librarians feel is the role of automation technology in curriculum planning.
patrons.

These three questions of future intent are linked to attitude about computers in library service. Thus, one can establish if a difference is shown in South Carolina library media specialists' attitudes toward automation and finally about the direction of library service in the state by studying the survey results.

All of these concerns influence the status of library automation. That status was examined through the responses given by the state's library media specialists.

POPULATION

South Carolina's librarians served as the population for this research project as they work in the state's media centers. The librarians served in the elementary, junior high/middle, or senior high schools of the public school system. They were library heads at South Carolina's public and private post-secondary schools. They were also directors of the public libraries.

Those gathered for the 1988 convention of the South Carolina Association of School Librarians were, therefore, the population used to gather survey responses and was later tagged as Group A. As the name shows, the group was school librarians who work in grades K-12 within the framework of the South Carolina Department of Education. They are bound by certain established curriculum objectives selected by the State Department and /or local school boards. They are from the public or private sector.

The surveys were mailed to the academic and public librarians who work with either a primary population of at least 18-year-old students in pursuit of a Bachelor's, Master's, or Doctoral degree or the various members of a local community or city. The academic librarian must have a degree from an ALA-accredited institution and is bound by certain school and state requirements as well as a possible national or regional agency. The public librarian also must have a degree from an ALA-accredited institution, is governed by a board composed of local and state community leaders, and deals with a varied clientele.

Responses were received from all parts of South Carolina representing diverse sizes of libraries. This group was later tagged as Group B. The number and types of libraries from which this sample came are shown in Appendix A. The sample of 90 surveys was considered representative of the 292 possible academic, public, and special libraries available.

MAJOR VARIABLES

Most research projects are influenced by variables controlled or not controlled by the researcher. This particular project did not use an independent or dependent variable as no element was introduced to either measure change or distinguish between means from a pre- and post- set of numbers. The variable in this study was the control variable (Issac and Michael, 1981) which was that only professional librarians were used. Other librarians and staff personnel were not represented because they are not responsible for library operations and may not have to have a Master's degree in library science from an American Library Association accredited institution.

EVALUATION DESIGN

The hypotheses given were tested using the t-test for comparing the responses to the attitude scaling. In a Likert-type scale there was a list of items, all of which were considered nearly equal in attitude or value loading. The two sets of librarians responded to each item. The scores of the position responses for each of the separate scales were summed, or summed and averaged, to yield an individual's attitude score (Issac

and Michael, 1981).

The scale scores were also used to determine the responses to the three research questions. The scale scores were item analyzed for median score and percentage of response. The means and standard deviations for each statement in each of the two groups were also calculated.

Another attitude scaling technique was also used. In this scale, the statements appear in the order of decreasing favorability. The statements marked as responses were recorded by highest and lowest number of statements and the average of the numbers was the value of the scaled score. This was taken directly from H. H. Remmers' "A Scale For Measuring Attitudes Toward Any Practice, " and the practice denoted was library automation. The person checks the items with which he agrees; the points are totaled and divided by the number of answered items to yield an average scaled value (Issac and Michael, 1981).

INSTRUMENTATION

For this study, two measuring devices were employed. The first measuring device was a survey applying the Likert scale with five responses ranging from strongly disagree to strongly agree. The fifteen statements were designed for use only in this research project to measure the attitude toward library service in the state of South Carolina. Part one of the survey was developed after extensive reading in current literature on the subject of library automation. It was designed to help

determine not only the amount of library automation currently in existence but also to measure the attitude toward this technological trend among the providers of library service whose job it is to meet the information needs of the students and patrons of South Carolina.

The second device was an attitude scale edited by H. H. Remmers entitled "A Scale For Measuring Attitudes Toward Any Practice." Library automation was the practice being measured. (See Appendix B.)

VALIDITY OF INSTRUMENTS

The author-constructed survey consisted of preliminary information about the respondent's library followed by fifteen statements dealing with library automation and directed at the opinion of the respondent. The attitudes were determined by the Likert-type or Summated Rating Scales. Issac and Michael (1981) write that summated rating scales seem to be the most useful in behavioral research as they are easier to develop and yield about the same information as more laboriously constructed equal-appearing interval scales. The main advantage is the greater variance obtained; a principal limitation inherent on any scale which depends on a subjective judgment is interpretation (Issac and Michael, 1981).

The validity of an established attitude scale such as Remmers, however, comes through its repeated use. According to Tuckman (1978, p. 361), the scale developed by Remmers has two

noteworthy features. It is general enough to measure a wide variety of instructional attitudes, and it contains items that were prejudged by a sample group on their positiveness and have been given scale values reflecting their judged positiveness (Tuckman, 1978).

Of course, a pilot study is helpful for validity and reliability. For these reasons, a pilot study was conducted during the week of April 11, 1988. The survey instruments were distributed to fifteen local school district librarians and administrators. The survey instruments had also been sent on-line to Dr. Richard Li, a Nova University advisor. The survey instruments were critiqued for clerical errors, redundant items, poor wording, poor instructions, and administrative problems. Dr. Li questioned the relevance to the direction of the project and gave approval after corrections were made. The feedback from all sources and the results of their responses to the survey items helped the study's director to develop the finished survey instruments.

SAMPLING

When one begins a research study, one must delineate the population of that study. Then, within the population, one actually chooses the parameters from which the results will come. For this study, the population had to be the librarians in South Carolina. However, since every South Carolina librarian could not participate, this study used the method of random sampling of

school, public, and academic librarians.

In an effort to randomly sample the school media specialists or Group A, the librarian conducting the study asked one of every three librarians attending the Thursday or Friday morning general session of the annual convention of the South Carolina Association of School Librarians to fill out a survey and return it before leaving on Friday afternoon. At the morning session on both days, the researcher asked every third person entering the general meeting to fill out the survey. If he or she refused, the researcher asked the next person in line and the method continued 75 surveys were handed out. One hundred and fifty surveys were given out among the 744 people who attended the convention.

To achieve a random sampling of both the public and academic librarians or Group B, the researcher mailed surveys to the main campus or main library of South Carolina's academic and public library community. Ninety surveys were mailed the week of April 24, 1988.

DATA-GATHERING TECHNIQUES

A two-faceted approach was employed to collect as many survey responses as possible. One approach was of direct acquisition. The researcher attended the convention and asked school librarians at the annual convention to respond to the survey sheets and to return them to an appointed person or table. The second approach was mail derived. The researcher mailed the

survey instrument along with a self-addressed, stamped envelope to the librarians in the state's academic and public libraries.

PROCEDURES AND METHODS

The procedure required the use of the following steps. First, the librarian conducting the survey requested permission from the president and convention coordinator of the South Carolina Association of School Librarians to pass out copies of the survey at the annual convention. (See Appendices C and D). Next, the surveys were distributed randomly to librarians attending a Thursday morning session or a Friday morning general session. As previously mentioned, every third person entering the morning general session was asked to fill out a survey. If he or she refused, the next person was asked to do the same. This helped to garner responses from distinct groups as some librarians attend only one day of the convention. The morning sessions were used because they would allow the time needed for the respondents to fill out the survey. Of 150 surveys, 75 were used on Thursday morning and 75 on Friday morning. Any questions directed to the purpose of the survey were answered by the librarian conducting the study. It was expected that half of the surveys would be returned in completed form.

Later, copies of the same survey were mailed to the directors of the academic and public libraries in South Carolina listed in THE AMERICAN LIBRARY DIRECTORY. An envelope already stamped

and addressed was enclosed to promote return. Ninety surveys were mailed so that the information given would show the trend in effect in library service in South Carolina for the academic libraries and the main branches of the public libraries. The total number of surveys returned completed was 70. This was 77% of the surveys sent for Group B.

Data were computed from the responses collected and later shared. However, a letter was then sent to the Editor of the MEDIA CENTER MESSENGER, the official publication of the South Carolina Association of School Librarians, thanking the school librarians for their participation in the study and offering to share the results through the MEDIA CENTER MESSENGER. (See Appendix E.)

STATISTICAL TESTS

To use the responses given on the surveys, the librarian conducting the study examined them in the following ways. All surveys had the responses converted to numbers. Two groups were established with Group A being school librarians and Group B being public and academic librarians. Within each group, the scores from the fifteen statements were summed, and a mean was calculated from the total of the sums (Issac and Michael, 1981). Then, within Group A and Group B a score from the Remmers scale was determined, and a mean was calculated from the total of the scale scores. The t-test was performed on the sample of each group. The t-test was used "to determine a significant difference

between two sample means. (Satisfactory for large samples; particularly appropriate for small samples)" (Issac and Michael, 1981, p. 176). To measure the t-test, the researcher had to determine the means of the sums and the sum of squares for each of the samples as well as the t-ratio and the degrees of freedom. Then the appropriate tables were consulted to determine whether the t-ratio showed a significant difference between the two sample means. The hypotheses were rejected or accepted using the two-tailed test with .05 as the level of significance (Issac and Michael, 1981).

The means and standard deviations were calculated for each of the fifteen statements as well as an item analysis. These were calculated for both Group A and Group B. The results for the item analysis and the means and standard deviations were presented in a tabled format.

FORMATS FOR PRESENTING RESULTS

The raw scores of the statistical computations served as a basis for the visual presentations. To show how the results related to each group, the librarian conducting the study used three tables. Table 1 shows the responses elicited from the two groups employing automation with the individual summed and averaged scores from both surveys, the mean, and the standard deviation. Table 2 shows the same responses as Table 1 from those not employing automation. Table 3 shows the responses to the fifteen statement survey by highest scale score, percentage

of respondents, the mean, and standard deviation.

EXPECTATIONS

As a result of the study, the researcher found that the survey led to some useful conclusions about the direction and the further operation of South Carolina's school media centers, public libraries, and college and university libraries. The influence of technology on these libraries was discussed, and specific recommendations were offered about the role school library media specialists should play in the state to prepare students for use of automated library technology. The researcher expected to receive positive scores on the statements dealing with library automation, cooperative library skills instruction, and state department of education involvement. She also expected no difference in the scores of the two groups A and B. The researcher wanted the results of the study published in the MEDIA CENTER MESSENGER so that the information contained therein was available for sharing with all school librarians in the state.

SUMMARY

The use of the survey by 150 school media specialists and 90 public and academic librarians provided a basis for this study about the direction of library services in South Carolina and the attitudes associated with that direction as well as a basis for future studies. If indeed South Carolina's librarians are to provide effective, important service in an information age, they must have some understanding of where they are as a group now in

order to determine how, when, and at what rate they will proceed. They also need to know what resources they can and will use based on what they now do use collectively as well as individually because much of the technology requires sharing to be truly worthwhile additions to library operations.

CHAPTER IV

Results

The investigation presented in the first three chapters of this paper was designed to ascertain the attitudes of public school, academic, and public librarians in the state of South Carolina toward library automation. The results of a two-part survey instrument are shown herein.

Findings

Hypothesis one: There is no difference between the two means of the two populations surveyed in the number employing automation.

Results: Of the 910 members of the South Carolina Association of School Librarians, 744 attended the annual convention. Of the 744 persons attending the convention, 150 were randomly selected by the researcher standing at the entrance to the morning sessions and asking one of every three persons attending the sessions to complete the survey. Of the 150 surveys given out, 67 were returned, but only 65 were completed or 43 % of the surveys handed out. Of the 90 surveys mailed to South Carolina public and academic librarians, 70 were returned or 77% of the surveys mailed out to academic and public librarians. These surveys were given out to 14% of the total number of school librarians in South Carolina as of 1986 (STATISTICS OF PUBLIC..., April 1987) and 30% of the total of other libraries in South Carolina as of 1988 (AMERICAN LIBRARY DIRECTORY, 1988).

From Table 1, one sees that for Group A, the school librarians, five are employing automated methods. From Table 1, one sees that for Group B, public and academic librarians, only 21 are employing automated methods.

Table 1

Libraries employing automation

Group A -School Librarians Individual scores		Group B - Public and Academic Individual scores	
Likert scale summed	Remmers scale averaged	Likert scale summed	Remmers scale averaged
55	4.0	48	9.5
53	4.0	64	5.0
52	4.0	70	5.0
59	4.0	28	7.5
56	4.5	46	4.0
		52	4.0
		46	8.0
		58	3.5
		52	8.0
		51	6.0
		53	8.0
		53	8.0
		53	5.0
		50	6.0
		59	4.0
		42	4.0
		57	7.0
		54	4.5
		44	3.5
		51	4.0
		50	5.5
Mean: 55.00	4.10	51.00	5.71
Standard Deviation: 2.45	0.20	7.14	1.80

The t-test used to determine a significant difference between the two means of Likert scale scores showed a value of 1.0335. To be significant, that value should be or exceed 2.064. Consequently, there is no significant difference in the Likert scale scores of the two groups. The t-test used to determine the difference between the two means of the Remmers scale scores gives a value of -1.9277. To be significant, that value should be or exceed 2.064. Consequently, there is no significant difference in the Remmers scale scores of the two groups.

Hypothesis two : There is no difference between the two means of the populations surveyed in attitude toward library automation.

Results: Of the 150 school librarians surveyed, 65 of the 67 school librarians returned completed forms. Of the 90 public and academic librarians surveyed, 70 returned completed forms. Of the 65 school librarians responding, five were using automated methods and 60 were not. Of the 70 public and academic librarians responding, 21 were using automated methods and 49 were not. In Table 1, one sees the tabulations for Group A and Group B for those employing automated methods. In Table 2 one sees the tabulations for Group A and Group B for those not employing automated methods.

Table 2

Libraries not employing automation

Group A - School librarians Individual scores		Group B - Public and Academic Individual scores	
Likert scale summed	Remmers scale averaged	Likert scale summed	Remmers scale averaged
57	4.0	55	3.5
62	6.0	58	8.0
54	4.0	46	4.5
57	3.0	53	4.5
58	4.5	53	8.0
46	4.5	52	3.0
49	5.0	51	8.0
44	7.5	50	3.5
57	4.0	49	8.0
55	3.5	49	9.0
51	4.5	56	7.5
55	3.5	19	3.5
56	5.0	55	4.0
56	6.0	60	5.0
61	4.0	53	4.0
49	6.0	55	6.0
51	3.0	57	6.0
49	4.5	46	6.0
65	3.0	47	8.0
55	3.0	51	4.5
54	4.5	63	4.0
60	6.0	51	5.5
55	3.0	67	4.5
43	4.0	44	7.5
43	5.0	63	4.5
48	7.0	54	6.0
54	5.0	47	6.5
46	4.5	53	3.5
62	4.0	51	4.5
55	4.0	56	4.0
55	3.0	44	4.0
62	4.0	56	5.0
49	7.0	59	4.0
56	3.0	46	4.0
47	4.5	52	4.5
52	4.0	63	4.5
51	5.0	48	4.5
60	6.0	51	3.0
60	4.5	52	3.5
55	3.0	59	8.0
46	4.5	49	6.0

TABLE 2 (Continued)

44	8.0	53	3.5
38	7.0	60	4.0
68	3.5	45	3.5
55	4.5	52	5.0
53	4.5	60	4.5
54	6.0	48	7.0
62	4.0	54	5.0
60	4.5	49	4.5
56	4.5		
47	7.0		
27	3.0		
65	6.0		
58	5.0		
50	3.0		
53	4.5		
58	3.5		
60	3.0		
53	4.0		
51	4.0		
Mean:			
55.53	4.56	52.53	5.16
Standard Deviation:			
6.98	1.26	7.28	1.64

The t-test that was used to determine the difference shows one that the value for the Likert scale scores for Group A from Table 2 and Group A from Table 3 is -0.4601. To be significant, that value should be or exceed -1.96. Consequently, there is no significant difference in the means of Group A from Table 1 and Table 2 using the Likert scale. The use of the t-test to determine the significant difference between Group A in Table 1 and Group A in Table 2 using the Remmers scale scores shows to one a value of 0.8006. To be significant, this value should be or exceed 1.96. Consequently, there is no significant difference in the attitude of Group A in Table 1 and Group A in

Table 2.

For Group B, academic and public librarians, the t-test shows a Likert scale score of 0.4118. To be significant, this value should be or exceed 1.96. Consequently, there is no significant difference in attitude for the means of Group B in Table 1 and Group B in Table 2. The t-test for Group B using the " Remmers scale " shows a score of -0.6639. To be significant, this value should be or exceed -1.96. Consequently, there is no significant difference in the attitude of Group B in Table 1 and Group B in Table 2.

Research question one: If the intent is to purchase materials of the traditional and automated formats, the responses to the survey will reflect a positive score for those statements.

Results: Statements six, seven, nine, and ten on the first part of the survey instrument represent the score for this research question. The means and standard deviations for each group for each statement are also noted. Table 3 contains these percentages, means, and standard deviations. Statement six reads as follows: Maintaining traditional sources for teaching reference skills is important. Group A responded to this statement most often with the number four that is 38 percent of the total responses. Their mean was 12.8 and the standard deviation was 7.52. Group B responded to this statement most often with the number four that is 42 percent of the total responses.

Their mean was 14.0 and the standard deviation was 12.31.

Statement seven reads as follows: Teaching reference skills using only automated methods is important. Group A responded to this statement most often with the number two which is 50 percent of the total responses. The mean was 13.4 and the standard deviation was 10.25. Group B responded most often with a one that is 34 percent of the total responses. Their mean was 11.4 and their standard deviation was 10.01.

Statement nine reads as follows: Patrons need to know how to use traditional reference sources as well as automated reference sources. For this statement, Group A responded most often with a five that is 49 percent of the total responses. Their mean was 13.0 with the standard deviation 12.38. Group B responded most often with a five that is 48 percent of the total responses. Their mean was 12.8 with a standard deviation of 12.50.

Statement ten reads as follows: Libraries in the process of automating need to maintain traditional reference sources. Group A responded to this statement most often with a four that is 44 percent of the total responses. Their mean was 12.4 with a standard deviation of 11.56. Group B responded most often with a five that is 57 percent of the total responses. Their mean was 19.2 with a standard deviation of 15.89.

Research question two: The number of media center specialists responding to the survey as being in an automated setting is important, but also of importance is the number of positive

responses given to the statements about who should automate and when.

Results: Statements one, two, three, four, five, fourteen, and fifteen on the first part of the survey instrument show the attitude score for this research question. Statement one reads as follows: Automation is important for today's media center. Group A responded most often with a five that is 60 percent of the total responses. Their mean was 13.0 and the standard deviation was 14.59. Group B responded most often with a four and a five equally that is 38 percent and 38 percent respectively of the total responses. Their mean was 14.0 with a standard deviation of 11.17.

Statement two reads as follows: School library media centers should be automated within the next 5 years. Group A responded most with a five that is 47 percent of the total responses. The mean was 13.6 and standard deviation was 12.31. Group B responded most often with a three that is 47 percent of the total responses. Their mean was 14.2 and the standard deviation was 11.55.

Statement three reads as follows: School library media centers should be automated within one year. Group A responded most often to this statement with a two that is 38 percent of the total responses. The mean was 13.4 with a standard deviation of 6.50. Group B responded most often with a three that is 46 percent of the total responses. The mean was 13.8 with a standard

deviation of 10.78.

Statement four reads as follows: Public libraries need to be automated. The response most often recorded for Group A is five that is 60 percent of the total responses. Their mean was 13.4 with a standard deviation of 12.96. Group B most often responded with a four that is 45 percent of the total responses. Their mean was 12.8 and the standard deviation was 12.75.

Statement five reads as follows: College and university libraries need to be automated. Group A most often responded with five that is 92 percent of the total responses. The mean was 13.8 with a standard deviation of 19.57. Group B responded most often with a five that is 51 percent of the total responses. The mean was 15.4 and the standard deviation was 14.23.

Statement fourteen reads as follows: It is important for the state of SC to develop a curriculum guide for the teaching of reference skills using an automated system. Group A responded most often to this statement with a four that is 46 percent of the total responses. The mean was 12.6 with a standard deviation of 9.79. Group B responded most often with a three that is 44 percent of the total responses. Their mean was 14.4 with a standard deviation of 10.76.

Statement fifteen reads as follows: It is important for the state of SC to develop a curriculum guide for the teaching of reference skills using the traditional resources. Group A's most frequent response was a four that is 36 percent. Their

mean was 13.0 with standard deviation of 7.32. Group B's most frequent response was a three that is 41 percent of the total responses. Their mean was 14.2 with a standard deviation of 9.91.

Research question three: The results of the responses to statements in the survey will reflect how librarians feel about the place library automation should take in curriculum planning. serve their patrons.

Results: Statements eight, eleven, twelve, and thirteen on the first part of the survey instrument contribute to the attitude score for this research question. The highest Likert scale score for Group A and Group B are reported and its percentage of the total responses are shown as well as the mean and the standard deviation for each group for each statement. Statement eight reads as follows: Patrons need to know how to use the library's resources before they come to the library. Group A responded most often to this statement with a two that is 47 percent of the total responses. Group A had a mean of 13.2 and a standard deviation of 9.99. Group B responded most often with a two that is 40 percent of the total responses. Group B had a mean of 14.4 with a standard deviation of 9.09.

Statement eleven reads as follows: Reference skills should be taught as isolated subjects in the library. Group A's most frequent response is a one that is 72 percent of the total

responses. Their mean was 13.0 with standard deviation of 17.50. Group B responded most often with a two that is 41 percent of the total responses. Their mean was 14.0 with a standard deviation of 8.37.

Statement twelve reads as follows: Reference skills should be taught as units developed by librarians and teachers. Group A responded most often with a five that is 61 percent of the total response. Their mean was 13.6 with a standard deviation of 15.30. Group B's response was a four that is 50 percent of the total responses. The mean for Group B was 13.6 with a standard deviation of 12.22.

Statement thirteen reads as follows: Reference skills should be taught as individual lessons when requested by a patron. Group A responded most often with a four that is 40 percent of the total responses. Their mean was 13.0 with a standard deviation of 9.98. Group B responded most often with a four that is 51 percent of the total responses. Their mean was 14.4 and a standard deviation of 11.67.

These responses and the data produced by them are displayed as follows. Table 3 show the highest scale score for each question, the mean, and the standard deviation.

Table 3
Likert Scale Responses To Fifteen Statements

#	Group A				Group B			
	Highest Scale Score	%	Mean	SD	Highest Scale Score	%	Mean	SD
6	4	38	12.8	7.52	4	42	14.0	12.31
7	2	50	13.4	10.25	1	34	11.4	10.01
9	5	49	13.0	12.38	5	48	12.8	12.50
10	4	44	12.4	11.56	5	57	19.2	15.89
Research Question One								
1	5	60	13.0	14.59	4/5	38	14.0	11.17
2	5	47	13.6	12.31	3	47	14.2	11.55
3	2	38	13.4	6.50	3	48	13.8	10.78
4	5	60	12.6	9.79	4	45	12.8	12.75
5	5	92	13.8	19.57	5	51	15.4	14.23
14	4	46	12.6	9.79	3	44	14.4	10.76
15	4	36	13.0	7.32	3	41	14.2	9.91
Research Question Two								
8	2	47	13.2	9.99	2	40	14.4	9.09
11	1	72	13.0	17.50	2	41	14.0	8.37
12	5	61	13.6	15.30	4	50	13.6	12.22
13	4	40	13.0	9.98	4	51	14.4	11.67
Research Question Three								

Note: Likert scale scores= 1 = Strongly disagree 2 = Disagree
3 = Neutral 4 = Agree 5 = Strongly agree

SUMMARY

The results of the aforementioned investigation into the attitudes of public, academic, and school librarians toward library automation have been presented in detail in this chapter.

The responses of said groups can be summarized in the following ways. Sixty five complete responses were received from the school librarians or Group A out of a total 150 surveys that were distributed. Seventy complete responses were received from the academic and public librarians or Group B out of a total 90 surveys that were distributed. Of these completed surveys, five of the 65 librarians in Group A were using automated methods; 21 of the 70 librarians in Group B were using automated methods.

There were two parts of the survey instrument. The first part was a 15 statement opinion survey employing a Likert scale method. The second part was an attitude survey about library automation employing the Remmers scale.

The t-test was used to determine statistical difference for the following statements. For hypothesis one, the t-test showed no significant difference in the attitudes of the two groups. For hypothesis two, the t-test showed no significant difference in the attitudes of the two groups.

For the research questions, the median scale score and its percentage were calculated along with the mean and standard deviation. For research question one, statements six, seven, nine, and ten were used to ascertain prevalent attitude. Statements six, nine, and ten all showed a higher than neutral scale score for Groups A and B. Statement seven showed a lower than neutral scale score for Groups A and B. For research question two, statements one, two, three, four, five, fourteen, and fifteen reflected attitude. Statements one, two, four, five,

fourteen, and fifteen showed a higher than neutral scale score for Group A. Statement three showed a lower than neutral scale score for Group A. Statements one, four, and five showed a higher than neutral scale score for Group B. Statements two, three, fourteen, and fifteen showed a neutral scale score. For research question three, statements eight, eleven, twelve, and thirteen reflect attitude toward curriculum planning. Statements twelve and thirteen showed a higher than neutral scale score for both groups. Statements eight and eleven showed a lower than neutral scale score for both groups.

There was little variation among the means of the two groups, Group A, school librarians, and Group B, public and academic librarians. The largest variation in means was with Group B for statement number 10 that dealt with maintaining traditional reference sources in the face of automation. The response to this survey item was highly positive.

CHAPTER V

Conclusions, Recommendations, and Implications

CONCLUSIONS

Several important conclusions about the direction of library service in South Carolina were apparent from the results of the survey. The attitude toward library automation expressed by school, public, and academic media specialists showed a fragmented picture.

Each group responded with a favorable scale score to several statements about library automation. However, they were not as compatible in their attitudes toward school libraries. Public and academic librarians answered with a neutral score while the school librarians answered with a high score if the automation were to take place in five years rather than sooner. Thus, the researcher concluded that it is more important to school librarians about the fate of automation in their facilities than it is to other groups. This was reinforced by an examination of the scored averages of the two groups using the Remmers' scale. Each group registered a mean in the positive range.

Another conclusion about the direction of library service as it pertains to library automation was seen in the survey responses to statements about materials and patrons. Both groups, A and B, concur in attitude to the trends discussed in the review of the literature. Group A with a five and Group B

with a five displayed positive reactions to the use of traditional as well as automated materials as seen in statement nine. They also disagree with a number two for statement eight that patrons already need to know how to use resources before they come to a media center. However, they do agree that a cooperative effort should be used in teaching any type of reference usage. These responses aligned directly with the consensus of today's journal article writers and readers.

Another conclusion related to these was also apparent. School librarians responded positively to the two statements on the Likert-type part of the survey that dealt with curriculum development at the state department of education level, but academic and public librarians responded with a neutral score. This suggested a continuing concern by the school media specialists which was not shared by their public and academic counterparts. This realization is important for school librarians as they continue to try to prepare library patrons for future use of other media center facilities and as they prepare their own school or district curriculum plans.

IMPLICATIONS

The administration of this survey instrument resulted in illuminating several important implications. The first supposition is that school, academic, and public librarians are willing to use automation. Thus, the low numbers of school, academic, and public libraries employing automation are not

due to disenchantment with or disregard of the new technology. The low numbers are indicative of other factors.

The second supposition is that school media specialists and public and academic librarians are not concerned about the same aspects of automation as it applies to all libraries. School librarians are fragmented in their goals for automation as well as being fragmented from academic and public librarians in overall goals for implementation of library automation. Part of this problem comes from no one person or agency within the school or academic communities spearheading this drive. It is seemingly an individual effort. Of significance is the fact that there are many more public and private elementary and secondary schools than there are colleges, universities, and public libraries. However, the availability of financing seems to be in favor of the large academic and public libraries.

Finally, the implication is that automation of all types of libraries will expand. The technology is proliferating; standards are changing; attitudes are favorable toward the technology; patrons are expecting and often demanding the services technology can provide.

RECOMMENDATIONS

Due to the nature of this investigation, only general recommendations are made as a result of the study. However, if these recommendations are acted on, the direction of library service in South Carolina can at least be planned and managed by

those professionals entrusted with such ministration.

The first recommendation is for each media specialist to formulate a realistic agenda for future operating procedures for his or her media center setting. One way to accomplish this is for the media specialist to read from journals and clip pertinent articles to share with his or her direct supervisor. In educating the administration to the current trends and operating opportunities, the librarian can lay the groundwork for future budget, personnel, and maintenance requests. Once the librarian and the supervisor become cognizant about the new technological influence on education and information sharing, each can request additional funding or request to shift funds to accommodate this new agenda from his or her particular governing body.

A final recommendation is that school librarians who accept the responsibility for educating library users at all levels develop a dialogue with their public and academic counterparts. This can be achieved through regional conferences and workshops, through cooperative joint programs, and informal meetings. The meeting which produced part of the survey results, the annual convention of the South Carolina Association of School Librarians, is a pathway for such joint communication. Members of this organization can request that their leadership begin dialogues with the State Department of Education personnel, with the leadership of the South Carolina Library Association which includes members from the various library service areas (public, academic, school, and special), and can request that the program

for the annual convention be aimed at joint planning and cooperation efforts. The results of this survey and others that will eventually be conducted can serve as a basis for such requests.

SUMMARY

This study was not an end all to a single problem. The problem of when and how to use automation technology in a library setting is too vast and complicated to be dealt with in such a single project. The main aim of the study, however, was achieved. The future of library automation in South Carolina is far from being clear. However, the attitudes presented in this study show that the enthusiasm and willingness to achieve superior library service for the patrons of South Carolina's public, academic, and school media centers is there.

Even though only eight percent of school media centers and 30 percent of academic and public media centers were already automated according to the data collected in the spring of 1988, the majority of those librarians surveyed from the academic, public, and school ranks showed a positive attitude toward library automation. They also showed positive agreement with the thinking found in current literature on the subject of how to teach library skills and how to serve patrons.

Of interest on a personal level were the comments and notes given in addition to the responses to the survey itself. Several librarians expressed concern about lack of coordination at the

state department of education level, were happy that some effort was being made to address the issue at the grassroots level, and wished that the results of the survey would help with some of the problems and anxieties associated with being a media specialist today. Of primary concern, however, is the need to have someone give authoritative advice about how to begin to automate, what hardware and software to buy, how much it would cost, and personal help on request.

AUTHOR IDENTIFICATION NOTES

Nellita P. DuBose was employed by Summerville School District as a media specialist in Flowertown Elementary School and did serve on the district committee described beginning on page 11 and ending on page 13 of Chapter I of this Major Field Project . I took part in the two meetings described and participated in equipping the two new schools with materials and equipment. I also became one of the media specialists who decided to automate the school's circulation system along with several of the other librarians in Summerville School District.

The librarians involved were from Flowertown Elementary School, Rollings Elementary School, Alston Middle School, and Summerville High School. The Assistant Superintendent for Summerville School District was in attendance as well. Both the elementary school and the middle school under construction opened in August, 1987.

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Appendix A

ACADEMIC, PUBLIC, AND SPECIAL LIBRARIES IN SOUTH CAROLINA

City/County	Main	Branch	Academic	Special
Aiken	1	12	2	1
Allendale	1	5	1	0
Anderson	1	8	1	1
Batesburg	1	7	0	0
Beaufort	1	2	2	2
Bennettsville	1	0	0	0
Bishopville	1	0	0	0
Camden	1	1	1	1
Central	0	0	1	0
Charleston	1	10	6	12
Cheraw	1	0	0	0
Chester	1	1	0	0
Chesterfield	1	4	0	0
Clemson	0	0	1	0
Clinton	0	0	1	1
Columbia	1	7	8	21
Conway	1	4	2	0
Darlington	1	3	0	0
Denmark	0	0	1	0
Due West	0	0	1	0
Duncan	0	0	0	1
Easley	1	4	0	1

Appendix A (Continued)

Edgefield	1	0	0	0
Florence	1	5	2	2
Fort Jackson	0	0	0	1
Gaffney	1	1	1	0
Georgetown	1	1	0	0
Gramling	0	0	0	1
Greenville	1	10	3	7
Greenwood	1	6	3	1
Greer	0	0	0	1
Hartsville	0	0	1	1
Kingstree	1	1	0	0
Lake View	0	0	0	1
Lancaster	1	1	1	1
Langley	0	0	0	1
Latta	1	2	0	0
Laurens	1	2	0	0
Marion	1	2	0	1
McCormick	1	0	0	0
Moncks Corner	1	3	0	0
Murrells Inlet	0	0	0	1
Myrtle Beach	0	0	0	1
Newberry	1	2	1	0
N. Charleston	0	0	0	1
Orangeburg	1	0	4	0
Parris Island	0	0	0	1

Appendix A (Continued)

Pendleton	0	0	1	1
Rock Hill	1	3	3	3
St. George	1	1	0	0
St. Matthews	1	0	0	0
Shaw AFB	0	0	0	1
Spartanburg	1	7	5	5
Summerville	0	0	0	2
Sumter	1	0	3	0
Tigerville	0	0	1	0
Union	1	0	0	1
Walhalla	1	3	0	0
Walterboro	1	0	0	0
Winnsboro	1	1	0	0
Totals	40	119	57	76

Total = 292

APPENDIX B

My name is Nellita DuBose. I am a school librarian in Summerville, SC, and I am also a doctoral degree student at Nova University in Ft. Lauderdale, Fla. As part of my dissertation, I need to find out about the automation practices currently being used in the state of South Carolina by librarians at all levels. I also need to know how reference skills are being taught within the framework of automation. I need your help to answer these questions.

If you would take a few moments to respond to the following statements, I would be very grateful. Please be assured that your answers will be used only for data as they apply to this dissertation topic and will remain confidential.

Thank you for your cooperation.

QUESTIONNAIRE

Check those which apply:

_____Private	_____Primary school
_____Public	_____Elementary school
_____Automated	_____Jr. High/Middle
_____Planning to automate	_____Senior High
_____Not automated	_____Public Library
_____College Library	_____University Lib.

1 = Strongly disagree 2 = Disagree 3 = Neutral
4 = Agree 5 = Strongly agree

Circle the number which most closely represents your opinion on the following statements.

1.	Automation is important for today's media center.	1	2	3	4	5
2.	School library media centers should be automated within the next 5 years.	1	2	3	4	5
3.	School library media centers should be automated within one year.	1	2	3	4	5
4.	Public libraries need to be automated.	1	2	3	4	5

Appendix B (Continued)

5.	College and university libraries need to be automated.	1	2	3	4	5
6.	Maintaining traditional sources for teaching reference skills is important.	1	2	3	4	5
7.	Teaching reference skills using only automated methods is important.	1	2	3	4	5
8.	Patrons need to know how to use the library's resources before they come to the library.	1	2	3	4	5
9.	Patrons need to know how to use traditional reference sources as well as automated reference sources.	1	2	3	4	5
10.	Libraries in the process of automating need to maintain traditional reference sources.	1	2	3	4	5
11.	Reference skills should be taught as isolated subjects in the library.	1	2	3	4	5
12.	Reference skills should be taught as units developed by librarians and teachers.	1	2	3	4	5
13.	Reference skills should be taught as individual lessons when requested by a patron.	1	2	3	4	5
14.	It is important for the state of SC to develop a curriculum guide for the teaching of reference skills using an automated system.	1	2	3	4	5
15.	It is important for the state of SC to develop a curriculum guide for the teaching of reference skills using the traditional resources.	1	2	3	4	5

Appendix B (Continued)

A Scale For Measuring Attitudes Toward Any Practice*

edited by H. H. Remmers

Directions: Following is a list of statements about practices. Place a plus sign (+) before any statement with which you agree with reference to the practice listed at the left of the statements.

*Library Automation

_____1. Has an irresistible attraction for me.

_____2. I like this practice too well to give it up.

_____3. Serves a good purpose.

_____4. Develops cooperation.

_____5. Should be appreciated by more people.

_____6. Has advantages.

_____7. There is no reason for stopping this practice.

_____8. Is all right in a few cases.

_____9. My likes and dislikes for this practice are balanced.

_____10. I dislike this practice but I do not object to others liking it.

_____11. Isn't so bad but it is very boring.

_____12. Has several undesirable features.

_____13. Should not be tolerated when there are so many better ones.

_____14. Life would be happier without this practice.

_____15. Is a waste of time and money.

_____16. Accomplishes nothing worthwhile either for the individual or society.

_____17. Is the worst thing I know.

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APPENDIX C

207 Swan Drive
Summerville, SC 29483
March 7, 1988

Ida R. Williams
President, South Carolina Association of School Librarians
4240 Donovan Drive
Columbia, SC 29210

Dear Ms. Williams:

My name is Nellita DuBose. I am the librarian at Flowertown Elementary School in Summerville. I am also a doctoral degree student at Nova University in Ft. Lauderdale, Florida.

I am currently writing my dissertation to complete my degree. I need your help and the help of my fellow librarians. I need your permission to conduct a survey at the April convention.

The survey will be concerning who is automating and at what stage of automation. I am hoping to be able to see the percentage of school librarians who are either automating or in the process of automating so that I can compare that percentage to the percentage of public college and university libraries and public libraries who are in the process of automating. Then I hope to ascertain how bibliographic skills are being taught at the public school level in order to prepare our students for using automated systems either as they go on to post secondary education or as they are public library users in the future.

The survey will be as brief as possible and will not take any time at the sessions already planned. I will simply ask the librarians I meet there to fill out the survey and return it to me when they are finished. I hope to be there Thursday and Friday so that I can survey as many librarians as possible.

I will also be happy to report my findings to you in the Media Center Messenger in the fall. Hopefully, it will provide valuable information to all librarians as they plan their bibliographic skills presentations.

Thank you for your help in this matter. If you have further questions, please feel free to contact me at the address above or at 873-2563 (h) or 871-7400 (w). I look forward to hearing from you and seeing you at the convention.

Sincerely,

Nellita P. DuBose

APPENDIX D

207 Swan Drive
Summerville, SC 29483
March 7, 1988

Cecile Dorr
Route 2, Box 359
Frogmore, SC 29920

Dear Ms. Dorr:

My name is Nellita DuBose, and I am the librarian at Flowertown Elementary School in Summerville. I am writing you, however, as a doctoral degree student from Nova University.

I have written Ida Williams to ask permission to conduct a survey at the upcoming convention. My dissertation is concerned with how the public school libraries are automating and how the public college and university libraries as well as the public libraries are automating. It will, hopefully, address the question of how bibliographic skills are going to be taught in the age of automation.

The survey will not require anything from you or Ms. Williams as it will not interrupt any of the sessions. I will simply ask librarians to fill out the survey for me as I see them in the exhibit area and other places.

I appreciate any help you can give me in this matter. If you should need to ask further questions, please feel free to write me at the above address or call 873-2563 (h) or 871-7400 (w). I look forward to hearing from you and seeing you at the convention.

Sincerely,

Nellita P. DuBose

APPENDIX E

207 Swan Drive
Summerville, SC 29483
April 18, 1988

Sarah Brown
Editor, Media Center Messenger
W.A. Perry Middle School
2600 Barhamville Road
Columbia, SC 29204

Dear Ms. Brown:

I wish to thank the members of the South Carolina Association of School Librarians, Ida Williams, and Cecile Dorr for the help they afforded me at the recent convention. I was able to distribute a survey I needed for my doctoral dissertation from Nova University, and I am deeply grateful for all the cooperation I received.

I will be happy in the future to share the data I gathered with all my colleagues in SCASL. Without YOU, this survey and its results would not have been possible.

Thank you for the fine convention and best wishes for the remainder of this school year.

Sincerely,

Nellita P. DuBose
Flowertown Elementary School