The role of the school library media specialist in distance education

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The role of the school library media specialist in distance education

by

Margaret Ellen Crawford

A Thesis Submitted to the
Graduate Faculty in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE

Department: Curriculum and Instruction
Major: Education (Curriculum and Instructional Technology)

Signatures have been redacted for privacy

Iowa State University
Ames, Iowa
1995
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CHAPTER I. INTRODUCTION

The image of the school librarian most familiar to people is Marian, the Librarian, in Meredith Willson's musical *The Music Man*. Marian spent her day busily stamping cards, checking books in and out, and keeping absolute quiet in the River City Library.

Although the image of Marian, the Librarian, persists (Herrin, as cited in Loertscher, 1988), the actual role of school librarians in education has changed dramatically over the past several years. No longer are librarians merely the keepers of the book collection. They now are expected to understand and be able to operate all technology for use in instruction and for information retrieval as well. They have become school library media specialists.

The role of the school library media specialist will continue to change as new technological developments are made available in schools. Computers started the transformation that changed the school library into the school library media center making it the center of technological activities within the school. The school library media specialist is now in charge of the operation and use of computers, automation of circulation and card catalog systems, online database searching, and other future developments in technology (Morris, 1992). “Technology is the crucial link for the school library media center of the future” (Morris, 1992, p. 361).

The latest technology to come into schools in Iowa is the use of a two-way fiber optic network, for distance education. The multimillion dollar fiber optic network, known as the Iowa Communications Network (ICN), will eventually connect all elementary and secondary schools, all higher education institutions and a variety of other public and private institutions. Each of the endpoints of the ICN will require a room and hardware for sending and receiving signals over the network. Each endpoint will require a person who will manage and maintain the ICN classroom.
and network, and assist staff and students in their use. This person will either be a staff member who has an interest in distance education, or the school library media specialist at the school where the distance education classroom is located.

The role of the school library media specialist in Iowa will probably expand to include distance education technology. “School library media specialists and librarians are essential components to the success of distance education and must not be left out of the movement” (Barron, 1989, p. 33). The ever changing role of the school library media specialist related to distance education may vary in each school system in Iowa. Because of the importance of distance education in Iowa, the role the school library media specialist will play concerning this new technology is of primary importance to education in Iowa.

Definition of Terms

**Distance education** is the delivery of instruction from a central site to one or more remote locations. Distance learners and instructors are separated geographically and are linked by telecommunication systems that permit live, interactive audio and/or video exchanges.

**Fiber-optics** allows for two-way interactive communications. The fiber, made of glass or plastic, transmits light signals instead of electric signals. Light travels in straight lines, but optical fiber guides light around corners.

**School library media specialists** provide the leadership and expertise to ensure that the library media program is an integral part of the instructional program of the school. The school library media specialist performs the roles of information specialist, teacher, and instructional consultant.
Statement of the Problem

Marian, the Librarian, from *The Music Man*, typifies the image that many people have of librarians. The stereotype of the introverted librarian is still present today, even in the minds of many of those in the profession (Loertscher, 1988). Changing that image among library professionals has been a slow and sometimes unsuccessful process. *Information Power: Guidelines for School Library Media Programs* (1988) was written as a guideline to promote change on the part of the professionals in the school library media center. The introduction to *Information Power* states:

Promoting effective physical access to information resources and intellectual access to the content is the central unifying concept of these guidelines. Library media specialists serve as the link between students, teachers, administrators, and parents and the available information resources. The roles and services defined in this document are dynamic; they are changing and evolving in response to the societal, economic, and technological demands on education. (AASL & AECT, 1988, p. 1)

The role of the school library media specialist in education has been changing for several decades. As new technological innovations, such as distance education, are introduced in the schools, one problem school library media specialists face is how to become knowledgeable about and involved in them.

*Information Power* has clarified the role the school library media specialist plays.

"Information, the organizing metaphor of the new guidelines, brings to the foreground of our professional conversation a certain consistency of purpose and, equally important, a language that is grounded in that purpose" (Cleaver, 1989, p. 2). *Information Power* provides school library media specialists with the vision and guidance to assist students, teachers, and parents to access and use information (AASL & AECT, 1988).

*Information Power* states "the mission of the library media program is to ensure that students and staff are effective users of ideas and information" (AASL & AECT, 1988, p. 1). The
objectives of the mission statement provide: 1) intellectual access to information; 2) physical access to information; 3) learning experiences that encourage users to become discriminating consumers and skilled creators of information; 4) leadership, instruction, and consulting assistance in the use of instructional and information technology; 5) resources and activities that contribute to lifelong learning; 6) a facility that functions as the information center of the school; and 7) resources and learning activities.

*Information Power* describes the three roles the school library media specialist must perform to meet the objectives of the mission. The distinct but overlapping roles of information specialist, teacher, and instructional consultant help unite the information resources and services of the school library media program to meet the information needs and interests of the school’s staff and students (AASL & AECT, 1988).

It is well accepted in the school library media profession that the best specialists today, and all specialists tomorrow will develop resource programs that reflect their roles as information providers who can help ensure a rich flow of resources to instructional programs; instructional consultants who can assist classroom teachers in designing instruction and producing resources to meet the learning needs of students; and teachers who can provide leadership in developing and implementing a program to integrate learning and information skills into the curriculum. (Miller, 1991, p. 44)

The role of information specialist is basic to the other roles. As information specialist, the school library media specialist makes sure that resources both within and outside the school building are available for use by students and staff (Miller, 1991). The traditional jobs of material selection, managing acquisitions, and circulating materials are still expected of the information specialist; but now the school library media specialist must use a vast array of technological tools to manage these tasks (Pritchett, 1991).

The role of teacher is one that the school library media specialist performs continuously. *Information Power* suggests that the teaching role of the school library media specialist has
expanded beyond the traditional role of helping students learn locating skills. The role becomes one of helping both staff and students acquire information and process that information into knowledge (Pritchett, 1991). “Teaching about information now includes broader concerns that focus on the efficacy of the generation and use of information, its relationship to the task at hand, and its place in our lives as productive citizens in a democracy” (Cleaver, 1989, p. 3).

The role of instructional consultant is described by Turner (1993) as helping teachers teach. This role of instructional consultant is one that has met with resistance by some school library media specialists. As an instructional consultant the school library media specialist helps teachers plan, implement, and evaluate their instruction (Turner, 1993). The school library media specialist works with teachers to help them use professional resources in the best way possible, in addition to helping teachers integrate a vast amount of information resources into the educational process (Pritchett, 1991). This process is a very important tool for improving the quality of education today (Turner, 1993).

The three roles of information specialist, teacher, and instructional consultant require the school library media specialist to assume instructional leadership in forming partnerships with teachers and administrators that will allow total integration of the media program into the instructional program of the school (Lewis, 1993). The school library media specialist must be familiar with a wide variety of resources and be familiar with how they can be used to support the curriculum (Miller, 1991).

According to Gailey (1992), the ability of the school library media specialist to prepare for, plan for, and manage change is a recurring theme identified in Information Power. Gailey (1992) cites a quote by Whitney (1988) that states:

The ability to cope with rapid change will be essential for success. Life in the next century will be characterized by the demands of adjusting to new circumstances,
learning new skills, competing in a changing job market, and keeping abreast of technological developments that, in turn, create more change. The Information Age, an age in which the abilities to access and use information effectively is requisite, is upon us. (Gailey, 1992, p. 37)

Much has been written about change in education and how it takes place. Carson (as cited in Coleman, 1993) states that most of the time improvement implies change that is usually accompanied by the implementation or integration of an innovation. McKenzie (1993) writes in Changing Attitudes in Renewal at the Schoolhouse that there are six lessons to be learned about change. The lessons about change are: 1) change is a process, not a single event; 2) it is an individual experience that is accomplished by individuals; 3) a person’s knowledge base can hinder an individual’s willingness to change; 4) change is implemented in stages; 5) change is best understood in operational terms; and 6) the focus should be on individual innovation with the current context.

The individual responsible for change is known as a change agent. Rogers (1983) defines a change agent as “an individual who influences client’s innovation decisions in a direction deemed desirable by a change agency” (Rogers, 1983, p. 28). Most of the time a change agent tries to bring about the adoption of new ideas, but the change agent may try to slow the process and prevent the adoption of some innovations. School library media specialists can become change agents by their willingness to support and be involved in new educational approaches (Gailey, 1992).

Rogers (1983) defines diffusion as “the process by which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 1983, p. 5). He goes on to describe the innovation-decision process whereby “an individual (or other decision-making unit) passes from first knowledge of an innovation to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation of the new idea, and to
confirmation of this decision" (Rogers, 1983, p. 20). Rogers (1983) defines innovativeness “as the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than the other members of a system” (Rogers, 1983, p. 22). Rogers identifies the innovativeness categories of people involved with the diffusion of an innovation. The five adopter categories are innovators, early adopters, early majority, later majority, and laggards. Innovators are characterized as being venturesome. The innovator launches the new idea in the social system by bringing in a new innovation within the present social system. Early adopters are characterized as respectable. Others in the social system look to the early adopters for advice and information about the innovation. The early majority are characterized as deliberate. Even though the early majority rarely hold leadership roles, they follow with deliberate willingness in adopting an innovation. The late majority are characterized as skeptical. Late majority approach innovations with skepticism and caution. Laggards are characterized as traditional. They are the last ones to adopt an innovation and are not opinion leaders.

The school library media specialist should be an innovator in promoting the use of all types of information and in the diffusion of new technology that will provide access to this information. Guidelines in Information Power (1988) provide a way for school library media specialists to become educational leaders in working with teachers to provide education with the best school library media programs. More research is needed to determine what the role of the school library media specialist is as change agent in the diffusion of the innovation of distance education. The role of the school library media specialist in distance education is one that could be very vital in affecting the success of this new technology for use by staff and students in Iowa.
Purpose of the Study

The purpose of this research study is to study the characteristics of school districts with distance education classrooms and of the school library media specialists in those districts. A second purpose is to determine the role of the school library media specialist in distance education. The third purpose of this study is to determine if the level of innovativeness of school library media specialists is related to characteristics of their school, media center, or background.

Research Questions

Three primary research questions of this study are:

1. What are the characteristics of school districts with distance education classrooms and the characteristics of the school library media specialists in those districts?
2. What is the role of the school library media specialist in distance education in Iowa?
3. Is the level of innovativeness of school library media specialists related to characteristics of their school, media center, or background?

Summary

Since the school library media specialist’s role in distance education in Iowa varies, more research is needed to understand what is influencing the degree of involvement by the school library media specialist in distance education. According to Information Power (1988), the vast amount of information and instructional technologies challenge school library media specialists to provide leadership and expertise for their diffusion into the school’s curriculum. The publication, Door to the World: Iowa Libraries and the Electronic Information Highway (Van Deusen, 1994),
provides standards for school library media and technology programs. In the area of technology in the curriculum, the document states:

   The Board shall adopt a plan for the efficient and effective use of technology in the instructional program. The plan shall provide for the understanding and use of current technology by staff and students and shall include a procedure to review the district’s utilization of technology as a teaching and learning tool. (Van Deusen, 1994, p. 8)

Further research needs to be done to determine how distance education in Iowa will be used as an information and instructional technology.

   Little has been written about the role of the school library media specialist in distance education in Iowa. Information about this topic can help the state of Iowa and local school districts when writing standards or requirements for library media specialists. These data could also be used by individual school districts to evaluate the role their school library media specialist plays in distance education in comparison to other school library media specialists. The data could also be used as a means of setting goals for the role of the school library media specialist in distance education.
CHAPTER II. REVIEW OF THE LITERATURE

This review of the literature examines research as it relates to the role of the school library media specialist in distance education. Research is reported about the history of distance education in Iowa. Research described the guidelines for the role of the school library media specialist in distance education as established in *Information Power* and specified the role of the school library media specialist as a change agent in the diffusion of an innovation. Chapter II concludes with a description of the Stages of Concern Theory and Diffusion Theory as they relate to the role of the school library media specialist in the diffusion of the innovation, distance education.

Distance Education

Distance education can be defined simply as “the delivery of instruction from a central site to one or more remote locations” (Jordahl, 1991, p. 72). Barron says distance education “is taking quality education to the people who need and want it” (Barron, 1989, p. 28). Education is very important in Iowa, and distance education is seen as a way to help fulfill a need for people who want education but are too far away to access it (Simonson, 1993).

Distance education has a long and interesting history.

Its roots can be traced back to the heroic efforts of educators who defied tradition and apathy to take education to those who were unable to participate in traditional schooling. Such crusaders took education into the slave cabins. In New England, Ann Eliot Ticnor used the mail to reach homebound women; she founded the Society to Encourage Studies at Home in 1873. In the 1920’s, Ben Darrow pioneered the use of radio in “The Little Red School House of the Air” in Chicago, and in Iowa, J. L. Potter and E. B. Kurtz tested the power of television as an instructional delivery system during the early 1930’s. William Harper, the first president of the University of Chicago, founded the first university-level correspondence teaching department in the late 1800’s and is often referred to as the “Father of Correspondence Teaching.” William Lighty
and the University of Wisconsin are frequently cited for their commitment, in the early part of this century, to reach out to people for whom formal education would not otherwise be available. (Barron, 1989, p. 28)

At the national level the biggest source of funding for distance education has come from the Star Schools Program established in 1988 by Public Law 100-297. This is a grant program under the direction of the U.S. Department of Education. The Star Schools program bill was sponsored by Senator Edward Kennedy of Massachusetts. It “is designed to assist schools involved in state or multi-state consortia to develop telecommunications networks which will deliver educational programs to those schools in areas of need” (Kitchen, 1988, p. 23).

In Iowa the concept of distance education is not new. But recent developments in state and local support and funding have made distance education in Iowa the technology of the ’90s. In the 1970s Kirkwood Community College became an educational telecommunications pioneer in Iowa. In the 1980s other educational systems in Iowa implemented or planned their own telecommunication systems (Iowa, 1992). By the end of 1986 the Iowa General Assembly decided there should be some direction in the area of telecommunication education. In 1987 the Iowa Educational Telecommunication Plan was formed. The goal of this plan was to reach areas of Iowa excluded from the higher education system and to extend educational links to elementary and secondary schools (Simonson, 1993). “Iowa’s approach to distance education is based on the belief that live, interactive instruction is fundamental to effective learning” (Teacher Education Alliance, 1994, p. 1).

Because of this belief and extensive work done on the part of the organizers of this plan and the strong support of Iowa Governor Terry Branstad, the Iowa Communications Network (ICN) was established. This statewide fiber optic network offers the capability of two-way, interactive telecommunicating on a local, statewide, regional, and national level. The network also offers the
capability of two-way data transfer. In 1992 Iowa was the recipient of a Star Schools Grant of $4 million, and an additional $4 million was granted in 1993. These grants provided funding for classroom equipment, teacher training, and an information clearinghouse. The Iowa Distance Education Alliance (IDEA) was established by teachers and administrators from all educational levels in the state of Iowa and is supported by local school boards and professional teacher organizations (Teacher, 1994).

IDEA was organized into four components that would ensure the project’s activities were completed. They were 1) formation of 15 regional partnerships to assist in staff development, inservice activities, and course offerings; 2) establishment of a clearinghouse by the Iowa Department of Education to provide access to information about distance education; 3) formation of the Teacher Education Alliance (TEA) to provide for the preservice and inservice teacher education training; and 4) development of the project management structure to administer the activities of the project.

Currently 53 Iowa high schools are connected to the network along with 42 community college campuses, the three regent universities, 14 private colleges, two area education agencies, eight Iowa Public Television transmitter sites, and a few other selected locations. The possibilities for the use of distance education using the ICN in Iowa are considerable. School library media specialists in Iowa are very much aware that “besides providing equity and quality educational opportunities, distance learning can open doors to increased access to information and instructional resources” (Kitchen, 1988, p. 23).

Information Power

Because of concern of school librarians about the lack of standards in the profession, in April, 1988, the American Association of School Librarians (AASL) and the Association for
Educational Communication and Technology (AECT) jointly developed *Information Power: Guidelines for School Library Media Programs*. *Information Power* was written to establish guidelines primarily for the elementary and secondary school library media specialist. The guidelines assist the school library media specialist in developing programs that “ensure students and staff are effective users of information” (AASL & AECT, 1988, p. 1). The objectives of *Information Power* are to provide: 1) intellectual access to information; 2) physical access to information; 3) learning experiences that encourage users to become discriminating consumers and skilled creators of information; 4) leadership, instruction, and consulting assistance in the use of instructional and information technology; 5) resources and activities that contribute to lifelong learning; 6) a facility that functions as the information center of the school; and 7) resources and learning activities. *Information Power* was written as a guideline to promote quality school media programs:

Promoting effective physical access to information resources and intellectual access to the content is the central unifying concept of these guidelines. Library media specialists serve as the link between students, teachers, administrators, and parents and the available information resources. The roles and services defined in this document are dynamic; they are changing and evolving in response to the societal, economic, and technological demands on education. (AASL & AECT, 1988, p. 1)

*Change* is the single word that characterizes the twentieth century (AASL & AECT, 1988). The biggest change in our society has occurred in the area of technological advancements. In many school library media centers, students and staff alike use a variety of technologies to access and organize information. Because of this increased usage, the need for school library media
centers to “renew, revitalize, and change has never been greater” (Willeke, 1993, p. 101). One of the objectives of *Information Power* is “to provide leadership and expertise in the use of information and instructional technologies” (AASL & AECT, 1988, p. 10). *Information Power* suggests that school library media specialists must be aware of new technologies as they become available, become familiar with technologies that would benefit their school population, and provide leadership and expertise in their use as they are integrated into the school curriculum (AASL & AECT, 1988). Byrne (cited in Gailey, 1992, pp. 49-50) states “the major contribution the school library media specialist can make as new technologies emerge will be in the area of professional expertise and effective interpersonal skills.”

Morris (1991) believes the goals of *Information Power* can be realized through the following seven strategies by: “1) providing intellectual access to information through systematic learning activities that develop cognitive strategies for selecting, retrieving, analyzing, evaluating, synthesizing, and creating information at all age levels and in all curriculum content areas; 2) providing physical access to information through a carefully selected and systematically organized collection of diverse learning resources, representing a wide range of subjects, levels of difficulty, communication formats, and technological delivery systems; access to information and materials outside the library media center and the school building through such mechanisms as interlibrary loan, networking and other cooperative agreements, and on-line searching of databases; and providing instruction in the operation of equipment necessary to use the information in any format; 3) providing learning experiences that encourage users to become discriminating consumers and skilled creators of information through introduction to the full range of communications media and use of the new and emerging information technologies; 4) providing leadership, instruction, and consulting assistance in the use of instructional and information
technology and the use of sound instructional design principles; 5) providing resources and activities that contribute to lifelong learning, while accommodating a wide range of differences in teaching and learning styles and in instructional methods, interests, and capacities; 6) providing a facility that functions as the information center of the school, as a locus for integrated, interdisciplinary, intergrade, and schoolwide learning activities; and 7) providing resources and learning activities that represent a diversity of experiences, opinions, social and cultural perspectives, supporting the concept that intellectual freedom and access to information are prerequisite to effective and responsible citizenship in a democracy” (Morris, 1991, pp. 51-52).

The library media specialist needs to take primary responsibility for changing the goals into concrete programs that will help prepare students for life and employment in the twenty-first century (Morris, 1991). Morris further states that library media specialists must use the goals to ensure students are prepared to meet the challenges of an information-rich society.

Changing Role of the School Library Media Specialist

*Information Power* clearly states that the separate but overlapping roles of the school library media specialist are information specialist, teacher, and instructional consultant. Through these roles the library media specialist provides the following:

1. access to information and ideas by assisting students and staff in identifying information resources and in interpreting and communicating intellectual content.
2. formal and informal instruction in information skills, the production of materials, and the use of information and instructional technologies.
3. recommendations for instructional planning to individual teachers as well as assistance in schoolwide planning of curricular and instructional activities. (AASL & AECT, 1988, p. 26)
Eisenberg (1988) stated, "From early on, the role of the school 'librarian' has been seen as encompassing three major areas: 1) collection management, 2) reading guidance and the promotion of literature, and 3) reference and information service" (Eisenberg, 1988, p. 10). Eisenberg (1988) further stated that as these roles have changed, distinct patterns became visible. First, in all areas, the level of involvement and expansion of functions has increased. Second, there has been a change from passive to active in the implementation of these functions. Craver (cited in Eisenberg, 1988) "documents the general movement from passive 'keeper or materials' to an active participant in the educational process" (Eisenberg, 1988, p. 10). Third was the noticeable disparity in perceptions, both within and without the profession, of the role of the library media specialist (Eisenberg, 1988).

Because of various factors, the importance of the role of the school library media specialist in education is very clear. Eisenberg (1988) felt the contributing factors were: 1) the increase of the use of technology, 2) the information explosion, 3) the importance of lifelong learning, and 4) the acceptance by many media specialists of their increased role and responsibilities. The historical role of the school library media specialist has changed to include the following:

1. collection management based on a unified media concept;
2. promotion of literacy, and guidance in the use of media;
3. teaching information skills for an information society, through integration with classroom curriculum;
4. acting as a catalyst or agent of change in schools through awareness of cutting-edge technology and consultation on curriculum and instructional design; and
5. assuming information management responsibilities beyond the walls of the centralized library media facility. (Eisenberg, 1988, pp. 13-14)

Loertscher (1988) asserted there were three necessary components for a successful school library media program. The components are warehousing, direct services, and resource-based teaching. According to Loertscher, the focal point of the school library media program should be resource-based teaching.
Loertscher (1988) believed the three components of a school library media program could be accomplished by following the 11 steps of the library media center taxonomy. Levels 1 and 2 of the taxonomy constitute the warehouse building block. Levels 3-7 concentrate on direct services to students and teachers. Levels 8-11 are the building blocks of resource-based teaching. (See Appendix B for complete taxonomy.) Cleaver (1989) stated that “at each higher level of the taxonomy, a closer collegial relationship is specified between the library media specialist and the teacher” (Cleaver, 1989, p. 10). Cleaver further stated that each level is important to the success of the program; but if the school library media specialist focuses on one level of the taxonomy, other levels are in danger of being ignored or forgotten altogether.

Turner, in his 1988 book, *Helping Teachers Teach*, described the role of the school library media specialist as being composed of three primary program areas. In the first area the school library media specialist promotes reading/viewing by students of all ages. In the second area the school library media specialist instructs students and staff in the use of the library and reference services. In the third area the school library media specialist assists teachers in the design, implementation, and evaluation of instruction. Turner stated that the third area is the most neglected but holds the most influence for the success of the library media program. Stripling (cited in Turner, 1988) pointed out that work in this area increases the access and use of information-gathering skills. Turner presented a model of basic instructional design that allowed for the involvement of the library media specialist at some point at this level. Turner recognized four levels of involvement by the school library media specialist. These are no involvement, passive participation, reaction, and action/education. The fourth level is the closest to the instructional design consultant. At the fourth level, where many of the steps in the teaching process are implemented, the school library media specialist is considered part of the instructional
team. “In both Loertscher’s taxonomy and Turner’s levels, the library media specialist not only plans with the teacher but plays an active role as instructor in the classroom and in the media center in the instruction of appropriate library or information skills and subject content if needed and desired by teachers” (Pickard, 1990, p. 18).

Role of the School Library Media Specialist in Distance Education

Even though distance education is not new, the widespread use of this technology is just beginning to become commonplace in schools (Kitchen, 1988). With each new or expanding technology, school library media specialists are provided new roles and new challenges. “In their joint publication of guidelines for the school library media program, Information Power (AASL & AECT, 1988), the American Association of School Librarians (AASL) and the Association for Educational Communications and Technology (AECT) stated that the mission of today’s school library media program is to ensure that the students and staff are effective users of ideas and information” (Burke, 1989, p. 2). This challenge is made more difficult by the fact that even though “leaders of the Star Schools program agreed that the library media specialist and the media program could play a very positive role in the program, the program has no specific guidelines for their involvement” (Barron, November, 1989, p. 31).

Daniel Barron, in his article titled “The School Library Media Specialist and Distance Education,” saw six potential roles a school library media specialist plays in distance education. The first role “is that of contact person or coordinator in the school” (Barron, February, 1989, p. 48). A building contact person or coordinator would be in charge of distributing programming information, maintaining and replacing equipment needed in the distance education classroom, and monitoring the quality of the signals being received and sent. Programming will eventually be
available for kindergarten through high school. Courses are already being offered at the undergraduate and graduate levels. Someone must be responsible to distribute information and materials for use in the distance education classroom.

School library media specialists are in charge of building collections, both print and non-print, hardware and software. A distance education classroom contains a variety of hardware to send and receive signals. Technologies found in a distance education classroom include an overhead projector, a VCR, an audio tape player, and a computer. In addition, a distance education classroom requires a certain amount of equipment such as two-way cameras, receivers, and microphones to send and receive signals. Someone needs to be available to coordinate and troubleshoot any technical problems. This includes monitoring the quality of the signal being sent and received. Because of their existing role as technology contact person in the building, this would be a natural extension of their present responsibilities, resulting in the second role of the school library media specialist in distance education (Barron, November, 1989, p. 33).

The third potential role for the school library media specialist in distance education would come about if school personnel decide someone other than the school library media specialist should be in charge of coordinating the distance education classroom. “The school library media specialist can serve as a partner to that person and still bring the expertise and knowledge to bear” (Barron, February, 1989, p. 48). The Model Task list that was developed by the Professional Growth Committee of the Iowa Educational Media Association describes one of the attributes of the media specialist as someone who “supports teacher and student goals and objectives by supplying appropriate resources” (IEMA, 1985, up.).

Probably there will be a local teacher assigned to work with the students enrolled in a distance education course. “Whatever other role the school library media specialist would be
given, the role with this person would be that of partner” (Barron, February, 1989, p. 48). This fourth role of the school library media specialist would be a natural outgrowth of the school library media specialist as a curriculum partner with the classroom teacher. The school library media specialist already serves on curriculum committees as a resource person. Because of the role as gatherer of resources, the school library media specialist is very knowledgeable with what is being taught at all levels in all courses. This is not any different than the role the school library media specialist already plays “to provide the same support and integration that the school library media program offers more traditional delivery systems” (Barron, November, 1989, p. 32).

Almost every course taught needs more than just the textbook and the classroom experience as resources (Barron, 1989). It would be considered “unethical to deny learners access to information by encouraging the attitude that all the student’s information needs are in the course manual, or in a very small deposit collection sent to a few sites” (Burge, 1989, p. 330). Therefore, the fifth potential “role of the school library media specialist as information gatekeeper and information consultant to the student can play a critical part in not only the achievement of program objectives, but also in extending their positive learning experiences beyond the initial classes and courses” (Barron, February, 1989, p. 48). There is some danger in providing all materials to students involved in a distance education class. In traditional classes students are expected to formulate their own research questions and do independent research to provide answers. Sometimes (or often) distance education students are considered at a disadvantage and are given all the materials they are expected to read. If everything is given to them, they will lose their chance to think creatively. It is therefore extremely important that the school library media specialist provide a library that is well equipped and will support research by all students including those in distance education. “The distance learner will need access to all forms of print and non-
print resources, including, when available, electronic mail services, facsimile transmission
services, computerized database searching, online catalog access, and interactive multimedia
resources such as videodisc and CD-ROM storage systems” (Burke, 1989, p. 66).

Finally, “another potential role for the school library media specialist is that of information
consultant to the teachers that will be participating in the distance education programs” (Barron,
February, 1989, p. 48). Many classroom teachers have used the same materials for several years
and they are unfamiliar with new or emerging technologies. Teachers who will use distance
education in their classroom need to be aware of teaching strategies and resources necessary to use
this technology to full potential. The school library media specialist can be a resource to the
classroom teacher by providing them with bibliographic information and knowledge of interlibrary
loan systems to access professional and curriculum related material and resources. Teachers too
may need instruction in the use of computer database searching, electronic mail, facsimile
transmission services, online access to the institution’s library catalog, and interactive videodisc
storage.

The school library media specialist can play a very important role in distance education.
However it is recommended “that the library media specialist be involved early in the planning
process and continue to receive planning and management information” (Burke, 1989, p. 57). It is
up to the school library media specialist to think of distance education as a way to put into play the
roles already held and how to become better at these roles.

School Library Media Specialist as Change Agent

School library media specialists have been “charged with developing specific implementation
strategies for the broad program goals frequently created by those above them in the hierarchy.
Nonetheless, they are able to exercise their considerable leadership talents to bring about change and improvement within their schools and school systems” (Coleman, 1993, p. 78). Miller (1991) stated that “the school library media specialist must be perceived as one of the change agents in the school” (Miller, 1991, p. 46). Rogers defines a change agent as “an individual who influences clients’ innovation decisions in a direction deemed desirable by a change agency” (Rogers, 1988, p. 312). Morris (1992) states that “in Information Power, the school library media specialist is challenged to prepare students for the future by acting as the change agent in schools” (Morris, 1992, p. 32). School library media specialists, in order to survive into the twenty-first century, must become technologically literate. They must be open to change themselves and be willing to learn and grow. The school library media specialist must develop programs and provide access to the information and technologies that will match the instructional needs of the school. “As a change agent, the school library media specialist must articulate the goals of the school library media program, communicate with all constituencies within the school, develop networks outside the school, and evaluate progress toward set goals” (Morris, 1992, p. 33). Krimmelbein stated that “as a manager of change, the library media specialist can more effectively facilitate adoption of an innovation, if she understands how it will affect people” (Krimmelbein, 1989, p. 213). “School library media specialists can play an important role as change agents by supporting and being involved in new educational approaches” such as distance education (Gailey, 1992, p. 54). Spitzer (cited in McKenzie, 1993) identified three reasons that instructional technology has not reached its full potential. The first reason is that the values of the individual have not been recognized, and the process of changing values hasn’t been considered when change is implemented. Second, he found leadership was not present when technology was implemented to improve learning and teaching. And third, there has been a lack of planning for adequate training when implementing
and utilizing instructional technology. Day and Scholl (cited in McKenzie, 1993, p. 87) found in
their survey that "teachers have a negative attitude about using audiovisual (AV) materials
because many media specialists failed to visit the classrooms to see how the materials were being
used." Their survey further confirmed the importance of the role of school library media specialist
in the role of instructional change agent.

Evans (1993) believes that reform usually creates a double standard: "When we advocate
change, we usually mean by other people" (Evans, 1993, p. 20). Bolman and Deal (cited in Evans,
1993) state that "change raises hope because it offers growth and progress—but it also stirs fear
because it challenges competence and power, creates confusion and conflict, and risks the loss of
continuity and meaning" (Evans, 1993, p. 20). McKenzie (1993) stated that "in implementing
change through the use of technology, the media specialist should be able to provide a setting and
tone that will make teachers comfortable with the proposed innovation and give them a sense of
control over the technological system" (McKenzie, 1993, p. 88). To accomplish this, the school
library media specialist must provide guidance about effective resources and provide instruction in
utilizing the system.

Marchionini and Nitecki (cited in McKenzie, 1993) stated the three things a change agent
should be aware of at the onset of introducing a technological innovation are characteristics of the
population to be trained, the specific content to be offered, and the instructional medium by which
the innovation is to be introduced, practiced, and institutionalized. In addition, refresher courses
need to be offered, and training and practice with the innovation should be provided (McKenzie,
1993). Evans (1993) stated that in education "implementation depends on five dimensions of
change: the content of the reform, the faculty's willingness and capacity for change, the strength
of the school as an organization, support and training, and leadership" (Evans, 1993, p. 20). Evans
felt “the most obvious requirement for change is technical support—training and materials—for staff” (Evans, 1993, p. 21). Usually training and resources are insufficient. Evans believed that “good support nourishes commitment; it doesn’t create it” (Evans, 1993, p. 21).

When school library media specialists play the role of change agents, there are several rules that should be followed to ensure successful change. First, the school library media specialist must help others apply previously learned principles. Good teaching principles still apply when using a new technology such as distance education. Second, when a complex technology is first introduced, it is best to start simply and go slowly. It is best to start where the learners are and have support people available to assist in using the new technology. A third rule is to be aware of competing distractions. It is up to the school library media specialist to use teaching techniques that work in the classroom to hold the attention of the teachers being trained. The fourth point focuses on the change agent. The school library media specialist as change agent “should be able to provide a setting and tone that will make teachers comfortable with the proposed innovation and give them a sense of control over the technological system” (McKenzie, 1993, p. 88). The change agent must believe in the value of the innovation and the change agent must be knowledgeable in its use (McKenzie, 1993). Making change happen requires careful and thorough planning on the part of the change agent.

Change is a complex process, but change under the direction of a skillful facilitator is likely to be accomplished successfully, if not painlessly. A media specialist can be a change agent particularly in the application of technology to instruction. However, if the media specialist is to serve in this role, he or she must be mindful of the slogan frequently associated with the media: “High Tech, High Touch.” (McKenzie, 1993, p. 92)

Theory Models

The Concerns-Based Adoption Model (CBAM) was developed by educational researchers from the Research and Development Center for Teacher Education at the University of Texas at
Austin “to learn how schools might go about the process of changing” (Hord, 1987, p. 4). The research focused on learning about the process being used to change schools: what it is, whom it involves, what its effects are, and how it can be managed.

Conclusions about change verified by the research team were:

1. Change is a process, not an event. It usually occurs over several years.
2. Change is accomplished by individuals. The focus of attention when implementing a new program should be on individuals.
3. Change is a highly personal experience. Individuals react differently to change. Therefore, responses and interventions to change must be individualized.
4. Change involves developmental growth. Feelings and skills toward a new program tend to change with experience.
5. Change is best understood in operational terms. People relate to change in terms of what it will do to them.
6. The focus of facilitation should be on individuals, innovations, and the context. People can only create change by changing their behavior. (Hord, 1987)

Since the CBAM model is client-centered, once the individual needs of users are identified, the change facilitator can provide assistance to those in need. The focus of the CBAM model is on change facilitators and how they can be more effective on their job. The job of a change facilitator or change agent is to “encourage, persuade, or push people to change, to adopt an innovation and use it in their daily schooling work” (Hord, 1987, p. 3).

In the role of the change facilitator, Hord (1987) identifies six Game Plan Components (GPC):

GPC 1: Developing Supportive Organizational Arrangements
GPC 2: Training
GPC 3: Consultation and Reinforcement
GPC 4: Monitoring
GPC 5: External Communication
GPC 6: Dissemination.

Each Game Plan Component can be explained in more detail. In Game Plan Component 1, guidelines, regulations, and policies related to the innovation are developed by the change facilitator, along with acquiring funding, and planning for the change and managing the entire
process. Game Plan Component 2 is characterized by the change facilitator arranging the training needed to use the innovation. In Game Plan Component 3, consultation and reinforcement by the change facilitator are less formal, more personalized, and are usually provided as follow up to training until clients become effective users of an innovation. The role of the change facilitator in Game Plan Component 4 is to gather objective data that will help assess the progress in implementing a new innovation. In Game Plan Component 5, the change facilitator informs or gains support of individuals or groups outside the school where an innovation is being implemented. Finally, Game Plan Component 6 involves the efforts of the change facilitator to provide information about the innovation to encourage others to adopt the innovation. “The key to successful facilitation is to personalize one’s interventions by focusing attention on the concerns of those engaged in the change process and accepting those concerns as legitimate reflections of changes in progress” (Hord, 1987, p. 90). Change facilitators must change the focus of their own concerns about change to focus on the concerns of those affected by change.

Rogers (1983) defined a change agent as “an individual who influences clients’ innovation decisions in a direction deemed desirable by a change agency” (Rogers, 1983, p. 312). Rogers (1983) explained that the “conventional role of the change agent is to diffuse innovations to clients” (Rogers, 1983, p. 314). In order for this change process to work, “the change agent must also provide linkage for clients’ needs and problems to flow to the change agency, so they can be considered in determining which innovations are most appropriate to diffuse to clients” (Rogers, 1983, p. 314). Rogers further stated that “the change agent’s role also includes obtaining feedback from clients about the change system” (Rogers, 1983, p. 314). The two problems that arise from the change agent’s role as a linker are social marginality and information overload (Rogers, 1983). The success of the change agent lies in the ability to link the change agency with the client system.
In addition, the change agent must transmit to the clients only information that is relevant. Rogers (1983) suggested seven roles for the change agent to follow when introducing a single innovation to clients: developing need for change, establishing an information-exchange relationship, diagnosing their problems, creating intent for change in them, translating intent into action, stabilizing adoption and preventing discontinuances, and achieving a terminal relationship.

In other words, the change agent is often initially required to help clients become aware of the need to alter their behavior. Once a need is created, a change agent must develop rapport with them. The change agent is responsible for analyzing the clients’ problem situations in order to determine why existing alternatives do not meet their needs. After a change agent explores various avenues of action that the clients might take to achieve their goals, the change agent seeks to motivate an interest in the innovation. A change agent seeks to influence the clients’ behavior in accordance with recommendations based on the clients’ needs. Change agents may effectively stabilize new behavior by directing reinforcing messages to those clients who have adapted, thus freezing, the new behavior. The end goal for a change agent is to develop self-renewing behavior in the clients. Some change agents are relatively more successful in introducing innovations. Rogers concluded that “the degree of success of change agents is usually measured in terms of the rate of adoption of innovations by members of the client system” (Rogers, 1983, p. 317).

Not all members of a social system adopt an innovation at the same time. Instead they adopt an innovation over time. Rogers (1983) felt it is more meaningful to categorize adopters of an innovation according to their degree of innovativeness. Rogers (1983) stated innovativeness, which is the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than other members of a system, indicates behavioral change which is the goal of most diffusion programs.
According to Rogers the five adopter categories are 1) innovators, 2) early adopters, 3) early majority, 4) later majority, and 5) laggards. Innovators are usually characterized as venturesome; they are eager to try new ideas and able to deal with a high degree of uncertainty about an innovation. Early adopters are usually highly respected within the social system and may be relied upon for advice and information about an innovation. The early majority follow with a deliberate willingness in adopting innovations, but seldom lead. The late majority approach an innovation with skepticism and caution and adopt an innovation only after most others in their social system have done so. Laggards are the last to adopt an innovation and tend to be suspicious of change agents and innovations (Rogers, 1983). These five categories are given according to "the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than other members of a system" (Rogers, 1983, p. 268).

Summary

This chapter provided a review of the current literature related to the role of the school library media specialist in the diffusion of the innovation, distance education. The research reported that while distance education has existed for a long time, the development and use of distance education in Iowa using the Iowa Communications Network (ICN) is a new and exciting technology. The research stated that 53 Iowa schools are presently connected to the ICN.

The research reported on Information Power guidelines and suggested that the school library media specialist must be involved in all programs that will assist staff and students in becoming effective users of information. The school library media specialist must be aware of new technologies, become familiar with technologies that would benefit the school population, and provide leadership and expertise in their use by teachers and students. The research emphasized
the changing role of the school library media specialist. The school library media specialist must encompass the three roles of information specialist, teacher, and instructional consultant.

As with each new technology, distance education provides the school library media specialist with new roles and challenges. The research stated that the school library media specialist has a potential role in the use of distance education. The six potential roles cited by Barron (1989) are: 1) contact or coordinator in the school, 2) coordinator and troubleshooter for technical problems, 3) partner of contact person, if other than library media specialist, 4) curriculum partner of distance education teacher, 5) information gatekeeper and information consultant to the students in the distance education classroom, and 6) information consultant to the teachers that will be participating in the distance education programs.

Several researchers reported on the school library media specialist as a change agent. Miller (1991) and Morris (1992) suggest that the school library media specialist should be considered as one of the change agents in the school. Marchionini and Nitecki (as cited in McKenzie, 1993) stated that as a change agent introducing technological innovations, the school library media specialist must be aware of characteristics of the population to be trained, the content to be offered, and the instructional medium that will be used. A school library media specialist who acts as a change agent for technological innovations must help others with previously learned principles, must start simple and go slowly, be aware of distractions, and be able to set a tone that makes the population comfortable.

The final section of this chapter focused on the stages of concern and diffusion theory as these theories relate to the use of and involvement in distance education by school library media specialists in Iowa. The Concerns-Based Adoption Model was developed to facilitate changes.
The literature suggested the need to understand the stages of concern for those involved in the change in order to effectively implement the change or innovation.

Diffusion theory also suggests that innovations are accepted by adopters at different rates. The five adopter categories are 1) innovators, 2) early adopters, 3) early majority, 4) later majority, and 5) laggards.

With these two theories as a foundation, this research attempted to determine what degree school library media specialists in schools in Iowa were using or were involved in distance education in Iowa. Chapter III will be concerned with the methodology and materials used to examine the characteristics and innovativeness of Iowa school library media specialists and their school districts involved in or using distance education.
CHAPTER III. METHODOLOGY

Distance education using the ICN is an important innovation facing Iowa educators and specifically, school library media specialists. Barron (1989) states that as "awareness and the implementation of distance learning spreads, school library media specialists will, no doubt, have some very important roles to play" (Barron, February, 1989, p. 47). The review of the literature identified no study about school library media specialist's innovativeness and their role in distance education. However, since school library media specialists are often expected to play an active role in new educational technologies such as distance education, it was decided worthwhile to investigate the involvement of Iowa school library media specialists in distance education.

This study had three purposes. The first was to examine the characteristics of school districts with distance education classrooms and the characteristics of school library media specialists in those districts. The second was to determine if school library media specialists do play a role in distance education in Iowa. The third purpose was to examine the level of innovativeness of school library media specialists related to characteristics of their school, media center, or background. This chapter contains four sections: selection of subjects, design of the instrument, collection of data, and analysis of data.

Sample

To conduct this study, a list of K-12 distance education classroom sites was requested from the Iowa Distance Education Alliance. In addition, a list of all school library media specialists was requested from the Iowa Department of Education.
The subjects of this study were identified as those persons serving in the position of school media specialist who listed a school address that was the same as the distance education classroom. Because many of Iowa's school districts are K-12, some school library media specialists shared access to the ICN classroom with other district media specialists but served different grade levels within the same district.

Instrument Design

The questionnaire was selected as the type of instrument used in this study. The questionnaire was identified as the most direct method of attitude assessment for a large group of subjects (Henson, Morris, & Fitz-Simmons, 1978). Henson et al. described the questionnaire as a device that: 1) permits anonymity, 2) provides time for the subjects to think about answers, 3) delivers uniform questions, 4) provides data that can be easily analyzed, and 5) permits mailing to simultaneously reach many people in a large geographical area. Part I of the Status of the Iowa School Library Media Specialist in Distance Education Questionnaire (MSDE) was designed using information from questionnaires designed by Grefe (1993), Lawyer (1989), and Neuberger (1989). Part II of the MSDE consisted of the Innovativeness Scale (IS), a valid and reliable instrument, that was concluded to be appropriate to determine the innovativeness of school media specialists.

MSDE Part I

Part I of the questionnaire was used to obtain demographic information about the school library media specialist and his/her school. The data were used to establish a profile of characteristics of school library media specialists. Part I had 40 questions. The answers were used to assess the demographics of school districts with a distance education classroom and the
characteristics of school library media specialists in those districts. The items were designed to answer the following research questions:

1. What are the characteristics of school districts with distance education classrooms and of the school media specialist in those districts?
2. What is the role of the school library media specialist in distance education in Iowa?

**Innovation Survey**

The purpose of the MSDE Part II was to answer the following research question:

3. Is the level of innovativeness of school library media specialists related to characteristics of their school, media center, or background?

The IS was used to determine the innovativeness of school library media specialists during the diffusion of the innovation—distance education. The IS is based on the characteristics of the five innovativeness categories discussed by Rogers and Shoemaker (1983). These categories are: _innovator_—"I consider myself adventuresome in relation to people like me"; _early adopter_—"I have a position of responsibility in at least one of the groups that I belong to"; _early majority_—"I make decisions deliberately and methodically"; _late majority_—"I like stability and consistency"; _laggard_—"I am suspicious of new inventions and new ways of thinking."

The IS is a 20-item test that identifies innovativeness. The raw scores are used to develop an innovativeness category for each respondent. The scores of the population used by Hurt et al. ranged from a low score of 22 to a high score of 139. The mean of the combined sample was 102, with a standard deviation of 14. "Although no data is yet available regarding its validity, its internal reliability is considered excellent (Nunnally's r = .89) (Hurt, 1977, p. 61)."
Rogers and Shoemaker (1983) identified the adopter categories within the distribution by dividing it according to the obtained standard deviation. Therefore, innovators make up 2.5% of the total population; early adopters, 13.5%; early majority, 34%; late majority, 34%; and laggards, 16% (Fig. 1).

Iowa school library media specialists were asked to respond to the statements in terms of their innovativeness, or how they felt about their involvement with distance education through the ICN in their school.

The following scale was used:

SA: Strongly Agree  
A: Agree  
MA: Moderately Agree  
U: Undecided  
MA: Moderately Disagree  
D: Disagree  
SD: Strongly Disagree

Responses were scored so that higher scores indicated a higher degree of innovativeness. Responses were scored as follows: Strongly Agree - 7; Agree - 6; Moderately Agree - 5; Undecided - 4; Moderately Disagree - 3; Disagree - 2; Strongly Disagree - 1. Responses to certain items were reversed so that scoring would be consistent with directionality of the wording of the item. The responses were given a raw score. The results of this questionnaire were used to answer research question 3, identified in Chapter 1: 3) is the level of innovativeness of school library media specialists related to characteristics of their school, media center, or background? The instrument, Status of the Iowa School Library Media Specialist in Distance Education Questionnaire (MSDE), was reviewed and accepted by the Iowa State University Human Subjects Review Committee (see Appendix A).
Distribution of questionnaire

The selected group of Iowa school library media specialists (n=58) were sent the questionnaire and a cover letter and a self-addressed, stamped envelope. The cover letter explained the purpose of the study, and asked the school library media specialist to participate. Each questionnaire was numbered for identification purposes. Three weeks was allowed for the return of the questionnaires, then follow-up letters were sent to those who did not respond.

Treatment of the Data

The data collected were analyzed to determine the demographics of school districts in Iowa with a distance education classroom and the characteristics of school library media specialists who served in those school districts. It was also used to examine the level of innovativeness of school library media specialists related to characteristics of their school, media center, or background. First the data were entered into a data analysis program to generate descriptive statistics. The data were analyzed to include the frequency of each response, the percentage of each response, the mean scores, and the standard deviation of scores. Next, the data were used to determine the correlation between several variables from the MSDE. Finally, t-tests were used to analyze the data.

Summary

The purpose of the study was to obtain data about the characteristics of school library media specialists and the characteristics of the schools with distance education classrooms in their buildings. An instrument, Status of the Iowa School Library Media Specialist in Distance Education Questionnaire (MSDE), was developed to collect information to provide a better
understanding of the characteristics of school districts with a distance education classroom related to the characteristics of school library media specialists in those school districts. In addition, the MSDE provided information about the level of innovativeness of the school library media specialist and the characteristics of their school, media center, and background. The chapter began with a description of the sample involved in the study and the instruments that were utilized to collect the data. Next, an explanation of how the questionnaire was distributed and to whom it was given was described. The chapter concluded with a discussion on the plans for data analysis.
* Mean Score Hurt's Population  \( \bar{X} = 102 \)  SD = 14

** Mean Score for School Library Media Specialists Scores  \( \bar{X} = 109.9 \)  SD = 16

*** Innovativeness Scale Scores: Higher scores = More Innovativeness

Figure 1. Comparison of school library media specialists' innovativeness scores to the population scores***
CHAPTER IV. RESULTS

This chapter discusses the results of data analyzed from the Status of the Iowa School Library Media Specialist in Distance Education Questionnaire (MSDE). The data reported in this chapter were collected from the questionnaire. This chapter contains the results of the statistical procedures used to 1) provide a descriptive profile of the participating respondents, 2) present a brief description of the schools involved, 3) provide a summary of the results from the Innovativeness Scale (IS) used to determine the innovativeness of people who are involved in the innovation adoption process of distance education, and 4) summarize the data gathered.

Description of the Sample

The results reported in this chapter were based on data gathered from the MSDE questionnaires returned by Iowa school library media specialists with a school address the same as the distance education classroom in their school district. Questionnaires, cover letters, and self-addressed stamped envelopes were mailed to 58 Iowa school library media specialists. Of the 58 questionnaires mailed, 44 were returned. A follow-up letter was sent to those who had not responded. An additional eight questionnaires were returned. Follow-up phone calls resulted in the return of two additional questionnaires. In addition, it was learned that one respondent had retired and three chose not to return the questionnaire. Thus, 54 questionnaires were used.

The response rate for the MSDE was considered excellent. The return rate of the school library media specialists’ questionnaires was calculated using 58 as the number of individuals sampled and 54 as the number of returned questionnaires; thus, the overall return rate was 90 percent (90%).
Profile of the Respondents

MSDE Part I was divided into three sections: 1) information about the subjects, 2) information about the school district where they are employed, and 3) information about distance education and the use of the ICN classroom by the school library media specialist. The purpose of Part I was to provide a descriptive profile of the sample. Frequency distributions were calculated for items in Part I of the questionnaire to describe certain characteristics about the respondents and their school districts. These results are illustrated in Tables 1-3.

Demographic information pertaining to the school library media specialists’ gender, age, teaching experience, library media experience, education, job title, current position, membership in professional organizations, conferences attended, journals subscribed to, distance education workshop attendance and knowledge, and use of the ICN was collected in the survey. A frequency count is reported for each of the demographic items (Table 1).

As reported in Table 1, 14.8% of the school library media specialists were male and 85.2% were females. The media specialists ranged in age from 24 to 61, with an average age of 46 years. Fifty-four percent of the media specialists were between the ages of 40-49. Forty-five percent of the school library media specialists had 0-5 years of teaching experience, and the average years served as a school library media specialist was 16. The education levels of the media specialists ranged from bachelor’s to master’s degrees. The majority (53%) of the school media specialists possessed a Master of Library Science degree. Over half (56%) of the media specialists were employed as full-time secondary school library media specialists. Sixty-eight percent of the media specialists were employed full-time at one school. Almost all of the school library media specialists belonged to some type of professional organization. Almost half (46%) of the media
specialists attended at least one educational conference a year. The respondents regularly read or subscribed to many different professional journals which dealt in part or wholly with distance education. The journal mentioned most frequently was School Library Journal. Over half (51.8%) of the school library media specialists had attended one of the distance education workshops/institutes put on by the Iowa Distance Education Alliance for the Iowa Star Schools Project. Even though 50% of the media specialists rated their knowledge about distance education as a moderate amount, exactly 50% rated their use of the ICN as a little.

School and district information that was collected in the survey included district enrollment, the number of district library media specialists, the number of media specialists per building, if there was a district technology coordinator, the number of grades served by the media specialist, if the media specialist had paid assistants, how many paid assistants were employed, and the number of hours the assistants were employed per week. Information about technology in the school media center that was gathered included data about the availability of computers in the media center, the presence of automated circulation and card catalog systems, the presence of a CD-ROM, modem, or fax machine, the availability of Internet, and who makes decision regarding technology purchases. A frequency count is reported for each of the school and school district items (Table 2).

Twenty (42.6%) of the school districts with an ICN classroom had less than 1000 total students. About 35% of the school districts employed at least two media specialists and 48 (92.3%) of the school districts had a media specialist at each building. Over half (62.8%) of the districts employed a technology coordinator. Twenty-six percent of the districts had media specialists that served 13 grades. The majority (83.3%) of the school districts employed paid assistants in the media center. Over half (53.3%) of the districts employed at least one paid
assistant. The average number of hours worked by the assistant was 26 hours per week. Almost all (98.2%) school districts reported the availability of computers in the media center. The majority (72.2%) of school districts had automated circulation systems in the media centers and the majority (51.9%) also had automated card catalog systems. Seventy-eight percent of the school media centers reported the use of CD-ROMs and modems. About 37% of the school media centers had a fax machine. Over half (57.4%) of the school districts had Internet available in the media center. Almost half (48.2%) of the decisions regarding technology purchases were made by the school library media specialist.

Information about distance education that was collected in the survey included whether or not the media specialist served a building with an ICN classroom, if the media specialist had a key to the ICN classroom, what were the positions of people that had keys to the ICN classroom, who was the contact person for use of the ICN, who was the ICN information person, ICN maintenance person, ICN troubleshooter, and person in charge of ICN repair/replacement. Information was also collected that provided information about the school library media specialist as a distance education resource person, as a provider of materials to ICN students, and as a trainer of ICN users. A frequency count is reported for each of the distance education items (Table 3).

The majority (74.1%) of the media specialists served in a building with the ICN classroom. Twenty-four percent listed their school address as the same as the ICN classroom address but they did not serve at the building level where the ICN classroom was located. Over half (59.3%) of the media specialists did not have a key to the distance education classroom. The positions of people who had a key to the distance education classroom, in addition to the school library media specialist, were administrators, custodians, classroom teachers, technology coordinators, secretaries, ICN monitors, coaches, teacher aides, curriculum coordinators, and district business
managers. Forty-seven percent of the media specialists stated that teachers would contact a school administrator to use the ICN. Forty-one percent (41.5%) of the media specialists stated that out-of-district personnel were in charge of distributing information about programs, courses, and other events offered over the ICN. Almost half (44.2%) of the media specialists said a school district administrator was in charge of maintaining and replacing equipment for the distance education classroom. Thirty-eight percent (38.5%) of the media specialists stated that out-of-district personnel were in charge of troubleshooting the signals being received and sent via distance education. Forty-two percent of the respondents stated that a school district administrator was responsible when equipment is in need of repair or replacement in the distance education classroom. The majority (56.6%) of the media specialists did not work as a resource person with teachers who used the ICN classroom. Over half (65.4%) of the media specialists did not provide materials to students taking a distance education class. The majority (73.6%) of the media specialists were not involved in training users of the ICN classroom.

MSDE Part II

The main purpose of MSDE Part II was to measure the innovativeness of school library media specialists. Part II of the MSDE was comprised solely of the 20-item Innovativeness Scale (IS).

Hurt, Joseph, and Cook’s Innovativeness Scale (IS) was developed to measure a normally distributed, generalized personality trait—willingness to change—which contributes to the adoption or rejection of new ideas. School library media specialists were asked to choose the response that best described how they felt about each of the 20 statements in Part II of the MSDE.
The respondents used the following Likert scale: 7=Strongly Agree, 6=Agree, 5=Moderately Agree, 4=Undecided, 3=Moderately Disagree, 2=Disagree, and 1=Strongly Disagree.

Rogers (1983) provides a method of adopter categorization that divides the respondents into the following five categories: 1) innovators, 2) early adopters, 3) early majority, 4) later majority, and 5) laggards. The area lying to the right of the mean plus two standard deviations is made up of individuals, called innovators, who are first to adopt an innovation. The second group of individuals, called early adopters, are included in the area between the mean plus one standard deviation and the mean plus two standard deviations. The third group of individuals, called early majority, are included in the area between the mean time of adoption plus one standard deviation. The fourth group of individuals, called late majority, are included in the area between the mean minus one standard deviation. The final group, called laggards, is made up of the remaining individuals.

The IS has a normal mean of 102 with a standard deviation of 14 for a general population. The scores range from a low score of 22 to a high score of 139 (Hurt, Joseph, & Cook, 1977). Iowa school media specialist respondents’ scores ranged from a low score of 61 to a high score of 140. The mean was 109.91 with a standard deviation of 16 (16.32) (Table 4).

Correlations

Correlation coefficients were computed between characteristics of school library media specialists and the Innovativeness Scale (IS) score to determine if there were statistically significant correlations. The Pearson product moment correlation technique was used to determine the strength of the relationships between characteristics of school library media specialists and their media centers and the respondents’ IS score. The characteristics examined
were: 1) age; 2) years of classroom teaching experience; 3) years of experience as a school library media specialist; 4) the number of conferences attended each year; 5) how the school library media specialists rated their knowledge of distance education; 6) how much the school library media specialists used the ICN; 7) the student population of the school district the school library media specialist served; 8) the number of school library media specialists employed in the building; 9) the number of school library media specialists employed in the district; and 10) the IS score.

According to the Pearson product moment correlation for data collected from the MSDE questionnaire, a statistically significant relationship \( (p<.05) \) was found between the following variables (Table 5):

1. School district size was significantly correlated to the number of school library media specialists in the district \( (r=.86) \). Larger school districts tended to have a greater number of school library media specialists. This is to be expected.

2. The number of school library media specialists in a building was significantly correlated to the number of school library media specialists in the district \( (r=.76) \). As the number of school library media specialists in the district increased, the number of school library media specialists in a building tended to increase. This is to be expected.

3. The number of media specialists in a building was significantly correlated to school district size \( (r=.72) \). As the size of the school district increased, the number of school library media specialists in a building also tended to increase. This is to be expected.

4. Age of the school library media specialist was significantly correlated to years as a school library media specialist \( (r=.53) \). This is to be expected.
5. Knowledge of distance education was significantly correlated to the Innovativeness Scale scores ($r = .53$). The data results showed that as knowledge of distance education increased, the score on the Innovativeness Scale also increased. The research tends to support the idea that knowledge of an innovation is related to innovativeness.

6. Age of the school library media specialist was significantly correlated to size of the school district ($r = .42$). Older school library media specialists tended to work in larger school districts. Larger school districts tend to employ more experienced, and older, media specialists because they are in larger communities.

7. Knowledge of distance education was significantly correlated to use of the ICN ($r = .45$). The more school library media specialists knew about distance education, the more likely they were to have used the ICN.

8. Knowledge of distance education was significantly correlated to the size of the school district ($r = -.32$). There tended to be a negative relationship between knowledge of distance education and size of the school district. Media specialists from larger districts tended to know less about distance education. This is a somewhat unexpected result (Table 5).

The correlation results indicated a strong relationship existed between only one variable and the Innovativeness Scale score. Knowledge of distance education and the Innovativeness Scale score had a positive relationship. This seemed to indicate that the media specialists who were more innovative were more knowledgeable about distance education.

**t-tests**

The t-test was used to determine if there were innovativeness differences between subgroups of media specialists. Nine t-tests were calculated.
The first t-test was calculated to see if there was a difference in the level of innovativeness between school library media specialists who had attended a distance education workshop/institute and those who had not. The mean IS score for those who had attended a workshop was 113.22 and for those who had not was 106.54. This difference was not statistically significant at the .05 level, even though the average scores between the two groups were quite different (Table 6).

The second t-test was used to determine if there was a difference in the level of innovativeness between school library media specialists who had an automated circulation system in the media center and those who did not. The mean IS score for those who had an automated circulation was 113.34 and for those who did not was 101.33. This difference was statistically significant (t=2.51; p<.01) (Table 7).

The next t-test was calculated to determine if there was a difference in level of innovativeness between school library media specialists who had an automated card catalog in the media center and those who did not. The mean scale for the Measurement of Innovativeness score for those who had an automated card catalog was 115.26 and for those who did not was 104.42. This difference was statistically significant at the .05 level (Table 8).

The fourth t-test was computed to determine if there was a difference in the level of innovativeness between school library media specialists who had a fax machine in the media center and those who did not. The mean IS score for those who had a fax machine was 116.3 and for those who did not was 106.09. At the .05 level this difference was statistically significant (Table 9).

The fifth t-test was used to determine if there was a difference in the level of innovativeness between school library media specialists who served in a building where the distance education classroom was located and those who did not. The mean IS score for those who had the distance
education classroom in their building was 112.9 and for those who did not was 107.71. This difference was statistically significant at the .05 level (Table 10).

A sixth t-test was computed to determine if there was a difference in the level of innovativeness between school library media specialists who had a key to the ICN classroom and those who did not have a key. The mean IS score for those who had a key to the ICN classroom was 117.73 and for those who did not have a key was 104.42. At the .05 level this difference was statistically significant (Table 11).

A seventh t-test was used to determine if there was a difference in the level of innovativeness between school library media specialists who worked as a resource person with teachers using the ICN classroom and those who did not. The mean IS score for those who had worked as a resource person was 119.39 and those who did not was 102.48. This difference was statistically significant at the .05 level (Table 12).

An eighth t-test was calculated to determine if there was a difference in level of innovativeness between school library media specialists who provided materials to students taking a distance education class and those who did not provide materials. The mean IS score for those who had provided materials to students was 118.94 and those who had not provided materials was 105. At the .05 level this difference was statistically significant (Table 13).

A final t-test was used to determine if there was a difference for level of innovativeness between school library media specialists who were involved in training users of the ICN classroom and those who were not involved. The mean IS score for those who were involved in training users of the ICN classroom was 117.08 and those not involved was 107.59. This difference was statistically significant at the .05 level (Table 14).
In summary, school library media specialists who responded positively that they had an automated circulation system, had an automated card catalog, had a fax machine, had a distance education classroom in their building, had a key to the distance education classroom, worked as a resource person with teachers using the ICN classroom, and provided materials to students taking a distance education class were significantly more innovative than school library media specialists who responded no to these questions.

Summary

The questionnaire MSDE was distributed to school library media specialists in Iowa who served in a building with an ICN classroom. A total of 58 questionnaires were sent out, and 54 were returned.

The characteristics of school library media specialists, the characteristics of the school buildings and school districts they served, and their score on the IS were analyzed. The Pearson product moment correlation technique was used to determine the strength of the relationships between characteristics of school library media specialists and school media centers and the respondents’ Innovativeness Scale (IS) score. Positive correlations were found between several variables, but the only variable that had a significantly positive correlation with the IS was knowledge of distance education. This indicated that media specialists who were more innovative were also more knowledgeable about distance education.

T-tests between subgroups of school library media specialists were utilized to determine statistically significant differences. Eight out of nine t-tests showed a significant difference in the level of innovativeness of media specialists who performed in a particular way or who served in a building possessing certain characteristics as opposed to those who did not perform in that way or work in a similarly equipped building.
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Distance education workshop attended:   
Yes  | 28  | 51.9    |
No    | 26  | 48.2    |

Distance education knowledge:  
None  | 2   | 3.7     |
A little | 13  | 24.1    |
A moderate amount | 27  | 50.0    |
Quite a bit   | 9   | 16.7    |
A great deal  | 3   | 5.6     |

ICN use:  
Never | 5   | 9.3     |
A little | 27  | 50.0    |
A moderate amount | 16  | 29.6    |
Quite a bit   | 5   | 9.3     |
A great deal  | 1   | 1.9     |

Distance education workshop attended:   
Yes  | 28  | 51.9    |
No    | 26  | 48.2    |

Distance education knowledge:  
None  | 2   | 3.7     |
A little | 13  | 24.1    |
A moderate amount | 27  | 50.0    |
Quite a bit   | 9   | 16.7    |
A great deal  | 3   | 5.6     |
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<td>51.9</td>
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<td>No</td>
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<td>None</td>
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<td>3.7</td>
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<tr>
<td>A little</td>
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<td>A moderate amount</td>
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<tr>
<td>Quite a bit</td>
<td>9</td>
<td>16.7</td>
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<td>A great deal</td>
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Table 2. School and school district information

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<td>Automated card catalog:</td>
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<td>Modem in media center:</td>
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Table 3. Distance education information

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<td>Key to ICN classroom:</td>
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<tr>
<td>Administrator</td>
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<td></td>
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<tr>
<td>Custodian</td>
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<td>Media specialist</td>
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<tr>
<td>Teacher</td>
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<tr>
<td>Technology coordinator</td>
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<td>ICN monitor</td>
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<td>Coach</td>
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<td>Teacher aide</td>
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<td>Curriculum coordinator</td>
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<td>Office staff</td>
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<td>Contact person for use of ICN:</td>
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Table 3. Continued

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<td>Classroom teacher</td>
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<td>1.9</td>
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<td>Media specialist</td>
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<td>9.6</td>
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<tr>
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<td>34</td>
<td>65.4</td>
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<td><strong>Media specialist as trainer of ICN users:</strong></td>
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Table 4. Innovativeness scale results (higher scores=greater level of innovativeness)*

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<td>61-140</td>
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*These results were obtained from MSDE Part II.
Table 5. Pearson correlations: Relationships between variables (40 respondents)*

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<td>.45*</td>
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<td>-.32*</td>
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<td>8</td>
<td>District media specialists</td>
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<td>-.11</td>
<td>-.01</td>
<td>.14</td>
<td>-.33*</td>
<td>-.13</td>
<td>.86*</td>
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<td>Building media specialists</td>
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*1=Age.  
2=Years of teaching experience.  
3=Years of experience as a school library media specialist.  
4=Number of conferences attended each year.  
5=Knowledge of distance education.  
6=Use of the ICN.  
7=Size of the school district.  
8=Number of media specialists in the district.  
9=Number of media specialists in the building.  
10=Innovativeness Scale (IS) score.  

*Significant at the .05 level.
Table 6. t-test: Distance education workshop attendance and innovativeness

<table>
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<tr>
<th>t-test</th>
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<th>Mean</th>
<th>S.D.</th>
<th>t value</th>
<th>p</th>
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<tbody>
<tr>
<td>Media specialists who attended a distance</td>
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<td>113.2*</td>
<td>14.1</td>
<td>1.49</td>
<td>.07**</td>
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</table>

*Higher scores=higher level of innovativeness.

**Significance level p<.05.
Table 7. t-test: Circulation systems and innovativeness

<table>
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<th>Mean</th>
<th>S.D.</th>
<th>t value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media specialists who had an automated</td>
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<tr>
<td>circulation system</td>
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<td>113.3*</td>
<td>15.4</td>
<td>2.5</td>
<td>.0076**</td>
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<td></td>
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<td>15</td>
<td>101.3*</td>
<td>16.6</td>
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</table>

*Higher scores=higher level of innovativeness.

**Significance level p<.05.
Table 8. t-test: Automated circulation systems and innovativeness

<table>
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<th>t-test</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>t value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media specialists who had an automated card catalog</td>
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<td>115.3*</td>
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<td>2.51</td>
<td>.008**</td>
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<tr>
<td>Media specialists who did not have an automated card</td>
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<td>104.4*</td>
<td>16.9</td>
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</table>

*Higher scores=higher level of innovativeness.

**Significance level p<.05.
Table 9. t-test: Fax machines and innovativeness

<table>
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<th>Mean</th>
<th>S.D.</th>
<th>t value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media specialists with a fax machine in the media center</td>
<td>20</td>
<td>116.3*</td>
<td>15.7</td>
<td>2.27</td>
<td>.0137**</td>
</tr>
<tr>
<td>Media specialists without a fax machine in the media center</td>
<td>33</td>
<td>106.1*</td>
<td>16.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Higher scores=higher level of innovativeness.

**Significance level p<.05.
Table 10. t-test: ICN classrooms in the building and innovativeness

<table>
<thead>
<tr>
<th>t-test</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>t value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media specialists who had an ICN classroom in the building</td>
<td>33</td>
<td>106.1*</td>
<td>16.0</td>
<td>2.26</td>
<td>.01**</td>
</tr>
<tr>
<td>Media specialists who did not have an ICN classroom in the building</td>
<td>14</td>
<td>101.7*</td>
<td>15.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Higher scores = higher level of innovativeness.

**Significance level p < .05.
Table 11. t-test: ICN room key and innovativeness

<table>
<thead>
<tr>
<th>t-test</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>t value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media specialists who had a key to the ICN</td>
<td>22</td>
<td>117.7*</td>
<td>10.9</td>
<td>3.13</td>
<td>.001**</td>
</tr>
<tr>
<td>classroom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Media specialists who did not have a key to</td>
<td>31</td>
<td>104.4*</td>
<td>17.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>the ICN classroom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Higher scores=higher level of innovativeness.

**Significance level p<.05.
Table 12. t-test: Resource person activities and innovativeness

<table>
<thead>
<tr>
<th>t-test</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>t value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media specialists who worked as a resource</td>
<td>23</td>
<td>119.4*</td>
<td>10.2</td>
<td>4.19</td>
<td>.01**</td>
</tr>
<tr>
<td>person with teachers using ICN classroom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Media specialists who did not work as a</td>
<td>29</td>
<td>102.5*</td>
<td>17.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>resource person with teachers using ICN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>classroom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Higher scores = higher level of innovativeness.

**Significance level p < .05.
Table 13. t-test: Materials support for distance education and innovativeness

<table>
<thead>
<tr>
<th>t-test</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>t value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media specialists who provided materials to students taking a distance education class</td>
<td>18</td>
<td>118.9*</td>
<td>12.7</td>
<td>3.06</td>
<td>.002**</td>
</tr>
<tr>
<td>Media specialists who did not provide materials to students taking a distance education class</td>
<td>33</td>
<td>105.0*</td>
<td>16.9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Higher scores=higher level of innovativeness.

**Significance level p<.05.
<table>
<thead>
<tr>
<th>t-test</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>t value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media specialists involved in training users of distance education classroom</td>
<td>13</td>
<td>117.1*</td>
<td>6.6</td>
<td>1.82</td>
<td>.037**</td>
</tr>
<tr>
<td>Media specialists not involved in training users of distance education classroom</td>
<td>39</td>
<td>107.6*</td>
<td>18.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Higher scores=higher level of innovativeness.

**Significance level p<.05.
CHAPTER V. CONCLUSIONS

Distance education using the ICN is the latest information technology available to schools in Iowa. The use of distance education enables students and staff the ability to access information that has never before been available. According to considerable literature, the school library media specialist should play an active role in the adoption and use of distance education.

The purpose of this study was to see whether or not school library media specialists in Iowa played a role in distance education. In addition, this study compared specific demographic characteristics of media specialists and the school they served to school library media specialists' level of innovativeness. The level of innovativeness was determined by having the school library media specialist complete the Innovativeness Scale (IS). The IS score was correlated with information obtained by the Status of the Iowa School Library Media Specialist in Distance Education Questionnaire (MSDE) to discover if relationships existed.

Different characteristics of school library media specialists and characteristics of the schools and school districts they served were compared to the school library media specialists' innovativeness. It was hoped that it would be possible to determine if relationships exist between variables by correlating the data.

Chapter V reviews Chapters I, II and III and restates the three research questions. The research questions and results are discussed based on the data collected from the MSDE and reported in Chapter IV. This study was designed to be a descriptive assessment of the involvement of Iowa school library media specialists of the innovation, distance education, and the innovativeness of the school library media specialists.
Review of Chapters I, II, and III

Research questions

In order to accomplish the purpose of this study, three research questions were developed:

1. What are the characteristics of school districts with distance education classrooms and the characteristics of the school media specialists in those districts?

2. What is the role of the school library media specialist in distance education in Iowa?

3. Is the level of innovativeness of school media specialists related to characteristics of their school, media center, or background?

Review of the literature

The review of literature addressed 1) the status of distance education in Iowa, 2) Information Power guidelines, 3) the changing role of the school library media specialist, 4) the role of the media specialist in distance education, and 5) the school media specialist as change agent. The final section of this chapter will focus on the Diffusion Theory as it relates to the innovation, distance education in Iowa, and the role of the school library media specialist.

The Iowa Communications Network (ICN) is the latest information technology to be made available to educators in Iowa. The multimillion dollar fiber optic network provides distance education to elementary and secondary schools, higher education institutions, and a variety of other public and private institutions. Along with access to the ICN will come the need for a person in each school who will manage, maintain, and assist staff in the use of this network. Because of his/her involvement in and knowledge about technology, the school library media specialist is a logical choice for the person to fill this position. Barron (1989) stated that “school library media
specialists and librarians are essential components to the success of distance education and must not be left out of the movement" (Barron, November, 1989, p. 33).

The mission statement of *Information Power* states that "the mission of the library media program is to ensure that students and staff are effective users of ideas and information" (AASL & AECT, 1988, p. 1). Students and staff use a variety of technologies to access and organize information. The library media specialist must be able to provide the leadership and expertise in the use of information and the technologies needed to access that information. The library media specialist must translate the goals established in *Information Power* to prepare staff and students for an information rich society.

Throughout the guidelines in *Information Power*, a recurring theme is the ability of the library media specialist to prepare for, plan for, and manage change. Improvement in education comes about through change that is usually accompanied by the implementation or integration of an innovation. The six lessons that McKenzie (1993) emphasizes are: 1) change is a process, not a single event; 2) it is an individual experience that is accomplished by individuals; 3) a person’s knowledge base can hinder an individual’s willingness to change; 4) change is implemented in stages; 5) change is best understood in operational terms; and 6) the focus should be on individual innovation with the current context.

Loertscher (1988) stated that the three necessary components for a successful school library media program are warehousing, direct services, and resource-based teaching. The three components could be accomplished by following the 11 steps of Loertscher’s Library Media Center Taxonomy. Levels 1 and 2 constitute the warehouse building block. Levels 3-7 concentrate on direct services. Levels 8-11 are the building blocks of resource-based teaching. Each level is important and must not be ignored.
According to Turner (1988), the school library media specialist must perform three roles—information specialist, teacher, and instructional consultant—in order to meet the objectives of the mission that students and staff will become effective users of information. As information specialist the library media specialist makes sure information resources within and outside the school building are available for use by staff and students. In the role of teacher the library media specialist helps students and staff acquire information and then teaches them how to process that information into knowledge. In the role of instructional consultant the library media specialist helps teachers teach by providing a vast amount of information into the educational process. The library media specialist must be familiar with different resources and how they can be used within the curriculum to perform these roles.

Even though “leaders of the Star Schools program agreed that the library media specialist and the media program could play a very positive role in the program, the program has no specific guidelines for their involvement” (Barron, November, 1989, p. 31). Barron, however, cited six roles of the library media specialist in distance education: 1) contact or coordinator in the school; 2) troubleshooter for technical problems; 3) partner to coordinator of distance education; 4) curriculum partner of distance education instructor; 5) information consultant to students in distance education class; and 6) information consultant to teachers participating in the distance education programs.

The individual responsible for change is the change agent. This individual “influences client’s innovation decisions in a direction deemed desirable by a change agency” (Rogers, 1983, p. 28). School library media specialists can become change agents by their support and willingness to be involved in new educational approaches. The three things a change agent should be aware of before introducing a technological innovation are the characteristics of the population
to be trained, the specific content to be offered, and the instructional medium by which the innovation is to be introduced, practiced, and institutionalized.

When media specialists act as change agents, four rules should be followed to ensure successful change. The four rules are: 1) the media specialist must help others apply previously learned principles; 2) the media specialist must start simply and go slowly when introducing a complex technology; 3) the media specialist must be aware of competing distractions; and 4) the media specialist must provide an environment that will make teachers comfortable with the new innovation and give them a sense of control over the situation. Making change happen requires careful planning on the part of the change agent.

Finally, in Chapter II theory models concerning change were reviewed. The Concerns-Based Adoption Model (CBAM) emphasized that change is a developmental growth process accomplished by individuals. The change must be facilitated by those trained individuals called change agents. Change comes through alteration of behaviors and use of the technology or technological innovation. Rogers (1983) defines diffusion as “the process by which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 1983, p. 5). Rogers' Diffusion of Innovation Theory suggested seven roles for the change agent to follow when introducing a single innovation to a client. The seven roles are: 1) developing need for change; 2) establishing an information-exchange relationship; 3) diagnosing their problems; 4) creating intent to change in the client; 5) translating intent into action; 6) stabilizing adoption and prevent discontinuances; and 7) achieving a terminal relationship.

The amount of research on distance education and the role of the media specialist in distance education was limited. Therefore, studies related to distance education and the role of the media
specialist were reviewed. The study centered on descriptive information concerning distance education and the innovativeness of school library media specialists in Iowa.

Methodology

The Status of the Iowa School Library Media Specialist in Distance Education Questionnaire (MSDE) was developed to obtain information from school library media specialists in Iowa who are employed in schools with a distance education (ICN) classroom. The MSDE was divided into two parts. MSDE Part I was designed to solicit demographic information concerning school library media specialists and their school buildings and school districts. Part II of the MSDE was used to assess the innovativeness of school library media specialists. The MSDE was mailed out to 58 school library media specialists who were the subjects of this study.

Discussion of Results

Demographic information

The purpose of Part I was to provide a descriptive profile of the sample. Based on the results of the frequency distribution computed for each question, the school library media specialists and school library media centers could be described in the following way: the school library media specialists were predominantly female with an average age of 46, with over half between the ages of 40-49. Almost half of the school library media specialists involved in distance education had 0-5 years classroom teaching experience, with eight years as an average number of years of classroom teaching experience. A fourth of the school library media specialists had 20-25 years of school library media experience, with an average of 16 years of school library media experience. Over half of the school library media specialists had either a Master of Library Science degree or
had an undergraduate degree in Library Science. Over half of the school library media specialists were employed in full-time secondary school library media positions and served one school.

Almost half of the school library media specialists were members of the Association of Educational and Communication Technology. The majority of media specialists belonged to more than one professional organization. Close to half of the school library media specialists attend at least one or two educational conferences each year. The journal read most often by school library media specialists was *School Library Journal*. Over half of the school library media specialists had attended at least one distance education workshop/institute put on by Iowa Distance Education Alliance for the Iowa Star Schools Project. Exactly half of the school library media specialists rated their knowledge about distance education as a moderate amount but rated their use of the ICN as a little.

**School and school district information**

The greatest number of school library media specialists served school districts with enrollments that numbered fewer than 1,000 and worked in a school district that employed at least two school library media specialists.

The majority of the school library media specialists were employed in a building with only one school library media specialist and were employed in a school district that also employed a technology coordinator. Almost half of the school library media specialists served four grades, or the high school level. The majority of the school library media specialists had paid assistants. Over half of the school library media specialists employed one paid assistant that worked an average of 26 hours per week. The majority of school library media center had access to computers, automated circulation systems, and automated card catalog systems. The majority of
the school library media centers had a CD-ROM, a modem, and Internet. Less than half of the 
school library media centers had a fax machine. The majority of school library media specialists 
make decisions regarding the purchase of new technology.

Distance education information

Over half of the school library media specialists worked in the building where the distance 
education classroom was located but they did not have a key to the distance education classroom. 
When asked to name the people who did have keys to the distance education classroom besides 
themselves, the school library media specialist most frequently mentioned school administrators, 
custodians, and classroom teachers. Almost half of the school library media specialists mentioned 
school administrators as the person teachers would contact to use the ICN.

Less than half of the school library media specialists stated that out-of-district personnel were 
in charge of distributing information about programs, courses and other events offered over the 
ICN. Almost half of the school library media specialists stated that an administrator was in charge 
of maintaining and replacing equipment for the distance education classroom. About a third of the 
school library media specialists stated that out-of-district personnel were in charge of 
troubleshooting. Almost half of the school library media specialists stated that when equipment in 
the distance education classroom was in need of repair an administrator was contacted. Over half 
of the school library media specialists did not work as a resource person with teachers using the 
ICN classroom. The majority of the school library media specialists did not provide materials to 
students taking a distance education class. Over half of the school library media specialists were 
not involved in training users of the ICN classroom.
The results from Part II of the MSDE were used to measure the innovativeness of school library media specialists. Each school library media specialist obtained one score. Higher scores indicated a higher perception of innovativeness on the part of the school library media specialist (Hurt, 1977). The scores from previous uses of the IS ranged from a low of 22 and a high of 139. The mean was 102 with a standard deviation of 14. For this study, school library media specialists' scores ranged from 61 to 140. The mean and standard deviation of all scores were 109.91 and 16.32, respectively. Out of the 54 school library media specialists who responded to the Innovativeness Scale, the majority perceived themselves as relatively innovative as compared to Hurt's group.

**Correlations between Innovativeness Scale scores and MSDE data**

Correlations were calculated between school library media specialists' Innovativeness Scale scores and information obtained on the MSDE to determine whether there was an association between certain characteristics and averaged scores. Of the 54 school library media specialists, only 40 respondents answered all questions on the MSDE; therefore, only 40 surveys were analyzed using the Pearson product moment correlation. Relationships between IS scores and MSDE information, with the exception of one area, were not statistically significant (p < .05). The one significant correlation occurred between the IS score and the respondent's knowledge of distance education (r=.53). The results demonstrated that the more known about distance education the higher the IS Scale score tended to be.
Differences between Innovativeness Scale scores and MSDE data

The results from Part II of the MSDE were used to describe the perceived innovativeness of school library media specialists toward the innovation, distance education. From the t-test results, significant innovativeness differences were found between subgroups of library media specialists.

The first subtest results indicated that the innovativeness of school library media specialists who had attended a distance education workshop/institute was not significantly different than the score for respondents who had not attended a distance education workshop. The actual difference between the average score for these two groups was 6, but this difference was not significant at the .05 level.

The second subtest results showed that innovativeness of school library media specialists was higher if they had an automated circulation system than if they did not have an automated circulation system. It appears that school library media specialists that are innovative are more likely to automate the library media center.

The third subtest results showed that innovativeness of school library media specialists was higher if they had an automated card catalog than if they did not have an automated card catalog. It appears that school library media specialists that consider themselves innovative are more likely to automate the card catalog in the library media center.

The fourth subtest results showed that innovativeness of school library media specialists was higher if they had a fax machine than if they did not have a fax machine. School library media specialists who consider themselves innovative also have current technology.

The next subtest results indicated that school library media specialists who served in the building where the distance education classroom was located had a higher innovativeness score than school library media specialists who served in a building without the distance education
classroom. Possibly, the availability of the distance education classroom could allow for more involvement of the school library media specialist, thus creating a feeling of innovativeness, or perhaps innovative media specialists tended to seek innovations for their schools, including distance education classrooms.

The sixth subtest results indicated that school library media specialists who had a key to the ICN classroom had higher innovativeness than school library media specialists who did not have a key to the ICN classroom. Having a key to the ICN classroom coincided with higher level of innovativeness, possibly because more innovative media specialists were more involved in distance education and needed access to the distance education classroom.

The seventh subtest results showed that school library media specialists who worked as a resource person with teachers using the ICN classroom had a higher innovativeness score than school library media specialists who did not work as a resource person with teachers using the ICN classroom. The respondents with high innovativeness scores indicated a willingness to work with teachers and new technologies.

The eighth subtest results showed that school library media specialists who provided materials to students taking a distance education class had a higher innovativeness score than respondents who did not provide materials to students taking a distance education class. The school library media specialists with high innovativeness scores indicated a willingness to work with students and new technologies.

The final subtest results indicated that school library media specialists who were involved in training users of the ICN classroom had a higher innovativeness score than respondents who did not train users of the ICN classroom. The school library media specialists with high innovative scores tended to be more willing to train users of the ICN classroom.
Innovativeness Scale Results

Rogers and Shoemaker (as cited in Hurt et. al, 1977, p. 59) “conceptualized innovativeness as the degree to which an individual is relatively earlier in adopting innovations with respect to others in the social system.” They go on to say that “innovativeness is a personality characteristic that is a normally distributed unidimensional characteristic of individuals in any given population” (Hurt, 1977, p. 59). Hurt et al. define “innovativeness as a normally distributed, underlying personality construct, which may be interpreted as a willingness to change” (Hurt, 1977, p. 59). Rogers and Shoemaker (as cited in Hurt, 1977, p. 59) “have defined innovativeness as a normally distributed construct.” Rogers, by using data gathered from the general population, identified adopter categories as: innovators, who make up 2.5% of the total population; early adopters, 13.5%; early majority, 34%; late majority, 34%; and laggards, 16%. Innovators are characterized as being venturesome. The innovator launches the new idea in the social system by bringing in a new innovation with the present social system. Early adopters are characterized as respectable. Others in the social system look to the early adopters for advice and information about the innovation. The early majority are characterized as deliberate. Even though the early majority rarely hold leadership roles, they follow with deliberate willingness in adopting an innovation. The late majority are characterized as skeptical. Late majority approach innovations with skepticism and caution. Laggards are characterized as traditional. They are the last ones to adopt an innovation and are not opinion leaders.

Using Rogers’ method of adopter categorization, the IS scores of Iowa school library media specialists were plotted to indicate their range of scores. The scores were then compared to Rogers’ adopter categorization, using the scores from the general population determined by Hurt (1977). A line was drawn from Rogers’ adopter categorization with a mean of 102 to the IS scores
of Iowa school library media specialists. The scores indicate that Iowa school library media specialists are more innovative than the general population (Table 14). Six (11%) media specialists could be considered innovators, 15 (28%) could be considered early adopters, 18 (33%) were a part of the early majority, 10 (19%) were late majority, and 5 (9%) were laggards.

Reactions to Results

The purpose of this study was to investigate the characteristics of school districts with distance education classrooms and the characteristics of the school library media specialists in those districts. A second purpose of this study was to identify the role of the school library media specialist in distance education in Iowa. The third purpose was to examine whether the level of innovativeness of school library media specialists is related to characteristics of their school, media center, or background. After correlating average innovativeness scores and MSDE data, only one valid conclusion could be made. The more the respondent knew about distance education, the higher the IS score.

It was thought that there might be a relationship between characteristics of the school library media specialist, characteristics of their schools and school districts, and innovativeness. Innovativeness of school library media specialists seemed to be related to more obvious characteristics of school library media centers and school library media specialists, such as: automated circulation systems, automated card catalogs, fax machines, presence of the distance education classroom, access to a key to the ICN classroom, the school library media specialist acting as a resource person with teachers, the school library media specialist who provides materials to students taking a distance education class, and the involvement of the school library media specialist in training users of the ICN classroom. The results of the study showed that
several obvious characteristics of the school library media specialist were significantly related to a media specialist’s innovativeness.

The results from Part II of the MSDE were used to describe the innovativeness of school library media specialists toward distance education. From the t-test results, significant innovativeness differences were found between subgroups of library media specialists.

The first subtest results indicated that the innovativeness of school library media specialists who had attended a distance education workshop/institute was not significantly different than the score for respondents who had not attended a distance education workshop. The actual difference between the average score for these two groups was 6, but this difference was not significant at the .05 level. Many of the people selected to attend the workshop/institutes were chosen because of their subject area. Probably the only reason a media specialist was chosen to attend was due to lack of interest on the part of classroom teachers. Many media specialists did not even have the opportunity to attend the distance education workshop/institute, therefore attendance at a workshop/institute would not make a difference in the level of innovativeness of the school library media specialist.

The second subtest results showed that innovativeness of school library media specialists was higher if they had an automated circulation system than if they did not have an automated circulation system. It appears that school library media specialists that are innovative are more likely to automate the library media center.

The third subtest results showed that media specialists who had media centers with automated card catalogs were more innovative than those that did not. An automated card catalog would provide faster access to information with the possibility of future access to information
from libraries at a distance. It appears that school library media specialists that consider themselves innovative are more likely to automate the card catalog in the library media center.

The fourth subtest results showed that school library media specialists that had a fax machine were more innovative than those that did not have a fax machine. The majority of media specialists surveyed stated that they made technology purchase decisions. A fax machine is a newer technology that makes it possible to access information from different locations. School library media specialists who consider themselves innovative would purchase current technology such as a fax machine.

The fifth subtest results indicated that school library media specialists who served in the building where the distance education classroom was located had a higher innovativeness score than school library media specialists who served in a building without the distance education classroom. Innovative media specialists tended to surround themselves with innovations, such as distance education classrooms.

The sixth subtest results indicated that school library media specialists who had a key to the ICN classroom had a higher innovativeness level than school library media specialists who did not have a key to the ICN classroom. If school library media specialists consider themselves innovative, they have probably established themselves as innovative within the school district, making them a logical choice to have quick access to the ICN classroom. Having a key to the ICN classroom was related to higher levels of innovativeness.

The seventh subtest results showed that school library media specialists who worked as a resource person with teachers using the ICN classroom had a higher innovativeness score than school library media specialists who did not work as a resource person with teachers using the
ICN classroom. The media specialists with high innovativeness scores were more willing to work with teachers and new technologies.

The eighth subtest results showed that school library media specialists who provided materials to students taking a distance education class had a higher innovativeness score than media specialists who did not provide materials to students taking a distance education class. The school library media specialists with high innovativeness scores were more willing to work with students and new technologies.

The final subtest results indicated that school library media specialists who were involved in training users of the ICN classroom had higher innovativeness scores than media specialists who did not train users of the ICN classroom. An innovative media specialist would see the need and want to train others in the use of a new innovation, such as distance education. The school library media specialists with high innovativeness scores were more willing to train users of ICN classrooms.

Suggestions for Future Research

There is a need for additional research about the role of the school library media specialist in distance education. Several respondents added comments at the end of the questionnaires that seemed to indicate a willingness to be involved in distance education but frustration with their actual involvement.

Additional research should include studies about the changing roles of the school library media specialist. If school library media specialists are to be leaders and change agents in regard to technological innovations, more research needs to be addressed regarding the resistance to change. Part of the research should include information concerning training and teaching school
library media specialists about distance education. Another area to be included in the research would be a study of the benefits of the innovation, distance education.

Summary

This study described the current role of the school library media specialist in the diffusion of the innovation, distance education in Iowa. A second purpose of this study was to identify relationships between specific demographic characteristics of school library media specialists involved in distance education in Iowa schools and their innovativeness. This study described the current role of the school library media specialist in distance education in Iowa schools. A description of the schools, the school district, and the school library media specialist is presented. Three research questions were formulated that were related to the purpose of the study. The questionnaire (MSDE) was developed as an instrument to provide answers to these research questions. MSDE Part I provided demographic information, and MSDE Part II provided information concerning the innovativeness of school library media specialists. The results indicated the respondents needed more knowledge concerning distance education as an innovation. More encouragement and support is needed for school library media specialists concerning their responsibilities and participation in distance education in schools in Iowa.

It was found that the level of innovativeness of school library media specialists was significantly related to a number of factors including the presence in schools of automated circulation systems, automated card catalogs, fax machines, distance education classrooms, and access to the distance education classroom. The level of innovativeness of school library media specialists was also significantly related to the school library media specialist acting as a resource person with teachers using the ICN classroom, providing materials to students taking a distance
education class, and training users of the ICN classroom. The less innovative school library media specialist and the library media center managed by this person have obvious characteristics that differentiate them from more innovative school library media specialist. Apparently, innovativeness of the school library media specialist is related to the use of many innovations in a school media center, not just distance education. Innovative school library media specialists act as resource persons with teachers using the ICN classroom, provide materials to students taking distance education classes, and train users of the ICN classroom. Their media centers have automated circulation systems, automated card catalogs, fax machines, distance education classrooms, and keys to the distance education classroom.

Innovativeness, or willingness to change, prompts many people to be involved in innovations such as distance education. The results of this study show that school library media specialists in Iowa are generally innovative. However, the availability of many technological innovations in media centers are strongly related to the innovativeness of the school media specialist. The results indicated the school library media specialists need more knowledge concerning distance education as an innovation. More encouragement and support is needed for school library media specialists concerning their responsibilities and participation in distance education in schools in Iowa. Finally, schools that desire innovative, technologically advanced media centers should probably seek school media specialist who are highly innovative.
REFERENCES


Gailey, K. J.. (1992). *The emerging profession: School library media specialists.* Atlanta, GA: Georgia State University, Department of Curriculum and Instruction in the College of Education. (ERIC Document Reproduction Service No. ED 346 855)


Iowa Distance Education Alliance. (July, 1992). Partnerships for interactive learning through telecommunications in Iowa's elementary and secondary schools. (84.203B Star Schools-Special Statewide Network). Iowa Partnerships: Author.


Smith (Ed.). *Renewal at the schoolhouse: Management ideas for library media specialists and administrators* (pp. 49-59). Englewood, CO: Libraries Unlimited, Inc.


ACKNOWLEDGMENTS

I would like to express my sincere appreciation to my major professor, Dr. Michael R. Simonson, for his advice, support, patience, and encouragement during this study.

I wish to express my gratitude to the other members of my Program of Study Committee, Dr. Ann Thompson and Dr. Dahlia Stockdale, for their interest and encouragement.

I would also like to thank my friends and co-workers in Mason City, and Iowa State University student, Melodee Grefe, and instructor, Charles Schlosser, for their support and encouragement. Their help and friendship were invaluable.

Finally, I would like to give a very special thank you to my parents, Cletus and Ann Hepp, my husband Ted, and my children, Katie, Joe, and Tim, for their prayers, love, support, patience, and understanding during the last year.
APPENDIX A. HUMAN SUBJECTS APPROVAL FORM
Information for Review of Research Involving Human Subjects
Iowa State University
(Please type and use the attached instructions for completing this form)

1. Title of Project: Role of the School Library Media Specialist in Distance Education

2. I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human subjects are protected. I will report any adverse reactions to the committee. Additions to or changes in research procedures after the project has been approved will be submitted to the committee for review. I agree to request renewal of approval for any project continuing more than one year.

Margaret E. Crawford 9/25/95
Typed Name of Principal Investigator Date
Signature of principal investigator

Curriculum and Instruction
31 River Heights Dr., Mason City, IA 515-424-2583
Campus Address
Campus Telephone

3. Signatures of other investigators

Date
Relationship to Principal Investigator

2/27/95
Major professor

4. Principal Investigator(s) (check all that apply)
☐ Faculty ☐ Staff ☑ Graduate Student ☐ Undergraduate Student

5. Project (check all that apply)
☐ Research ☑ Thesis or dissertation ☐ Class project ☐ Independent Study (490, 590, Honors project)

6. Number of subjects (complete all that apply)
56 # Adults, non-students ☑ # ISU student ☐ minors under 14 ☑ # minors 14 - 17 other (explain)

7. Brief description of proposed research involving human subjects: (See instructions, Item 7. Use an additional page if needed.)
This survey will examine whether or not school library media specialists in Iowa are involved in distance education. It will also examine whether or not school library media specialists perceive themselves as innovative and how this affects their involvement with distance education. A survey will be used to gather the statistical data. The subjects for this survey will be all school library media specialists in Iowa, regardless of sex, who are employed at a school with a distance education classroom. The survey is a paper and pencil survey and subjects will only have to participate if they wish to. The subjects will be given three weeks to respond and then an additional survey will be mailed. A follow-up phone call will be placed after one more week if no further responses are received.

(Please do not send research, thesis, or dissertation proposals.)

8. Informed Consent:
☐ Signed informed consent will be obtained. (Attach a copy of your form.)
☒ Modified informed consent will be obtained. (See instructions, item 8.)
☐ Not applicable to this project.
9. Confidentiality of Data: Describe below the methods to be used to ensure the confidentiality of data obtained. (See instructions, item 9.)

Each participant will receive a number and that number will be placed on the top sheet of the survey. The number will only be used to determine whether or not a subject has returned the survey or not. There will be no identifying information required or placed on the survey.

10. What risks or discomfort will be part of the study? Will subjects in the research be placed at risk or incur discomfort? Describe any risks to the subjects and precautions that will be taken to minimize them. (The concept of risk goes beyond physical risk and includes risks to subjects' dignity and self-respect as well as psychological or emotional risk. See instructions, item 10.)

11. CHECK ALL of the following that apply to your research:

A. Medical clearance necessary before subjects can participate
B. Samples (Blood, tissue, etc.) from subjects
C. Administration of substances (foods, drugs, etc.) to subjects
D. Physical exercise or conditioning for subjects
E. Deception of subjects
F. Subjects under 14 years of age and/or Subjects 14 - 17 years of age
G. Subjects in institutions (nursing homes, prisons, etc.)
H. Research must be approved by another institution or agency (Attach letters of approval)

If you checked any of the items in 11, please complete the following in the space below (include any attachments):

Items A - D Describe the procedures and note the safety precautions being taken.

Item E Describe how subjects will be deceived; justify the deception; indicate the debriefing procedure, including the timing and information to be presented to subjects.

Item F For subjects under the age of 14, indicate how informed consent from parents or legally authorized representatives as well as from subjects will be obtained.

Items G & H Specify the agency or institution that must approve the project. If subjects in any outside agency or institution are involved, approval must be obtained prior to beginning the research, and the letter of approval should be filed.
Checklist for Attachments and Time Schedule

Following are attached (please check):

☐ Letter or written statement to subjects indicating clearly:
   a) purpose of the research
   b) the use of any identifier codes (names, #s), how they will be used, and when they will be removed (see Item 17)
   c) an estimate of time needed for participation in the research and the place
   d) if applicable, location of the research activity
   e) how you will ensure confidentiality
   f) in a longitudinal study, note when and how you will contact subjects later
   g) participation is voluntary; nonparticipation will not affect evaluations of the subject

☐ Consent form (if applicable)

☐ Letter of approval for research from cooperating organizations or institutions (if applicable)

☐ Data-gathering instruments

<table>
<thead>
<tr>
<th>Anticipated dates for contact with subjects:</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Contact</td>
</tr>
<tr>
<td>March 13, 1995</td>
</tr>
<tr>
<td>Month / Day / Year</td>
</tr>
</tbody>
</table>

If applicable: anticipated date that identifiers will be removed from completed survey instruments and/or audio or visual tapes will be erased:

Month / Day / Year

Signature of Departmental Executive Officer Date Department or Administrative Unit

Decision of the University Human Subjects Review Committee:

☐ Project Approved  ☐ Project Not Approved  ☐ No Action Required

Patricia M. Keith
Name of Committee Chairperson Date Signature of Committee Chairperson
APPENDIX B. COVER LETTER AND SAMPLE QUESTIONNAIRE
Dear Media Specialist,

You have been selected to participate in a research study based on your position as school library media specialist and because a distance education classroom is located in the building you serve. This research is part of the requirements for completion of my Master's degree from Iowa State University. It would be appreciated if you could complete this survey as soon as possible. The results of this study will provide information to be used as part of a large research agenda regarding distance education in Iowa.

This survey takes only about 15 minutes to complete, however you may choose not to participate. Please return the survey in the self-addressed, postage-paid envelope that is enclosed. Please return the survey to me by March 31, 1995, even if you decide not to participate. Rather than giving your name, a number has been assigned to you for identification purposes. This number appears on the front of your survey and will only be used to keep track of returned surveys. Responses to this survey will be kept confidential and data will be compiled and described so as not to reveal individual persons or school districts.

We feel the data collection from this research will help legislators, administrators, teachers, and media specialists make decisions regarding distance education in Iowa schools. If you have any questions regarding this survey, please contact me at work at 515-421-4413 or at home at 515-424-2583. Thank you.

Sincerely,

Margaret Crawford
Media Specialist
Madison Elementary
Mason City School District

Dr. Michael Simonson
Professor of Curriculum & Instructional Technology
College of Education
Iowa State University
STATUS OF THE MEDIA SPECIALIST IN DISTANCE EDUCATION QUESTIONNAIRE

Part 1
Questions in Part 1 relate to your background, your school and school library media center, and your use of the distance education classroom within your school. Please circle and/or fill in the blank to answer each question as it pertains to you and your situation. Thank you for your time and cooperation.

INFORMATION ABOUT YOU:

1. I am 1. male 2. female

2. I am ______ years old.

3. I have ______ years of teaching experience, not counting library/media experience.

4. I have been a school library media specialist for _______ years.

5. My highest degree is:
   1. Master of Library Science graduate degree
   2. Master's degree in another field
   3. Undergraduate degree in library science
   4. Undergraduate degree with a minor in library science
   5. other (please specify ____________________________).

6. My job title is
   1. full-time secondary media specialist
   2. part-time secondary media specialist
   3. full-time K-12 media specialist
   4. Director of District Media Services
   5. other (please specify ____________________________).

7. I have
   1. a full-time position in one school
   2. a full-time position but serve in more than one school
      (please specify the number of schools and the student population of the schools you serve)
      1. _______ schools 2. ________ total student population
   3. a half-time position
   4. other (please specify______________________________).

8. What professional organizations do you belong to? (circle all that apply)
   1. Iowa Educational Media Association (IEMA)
   2. Iowa Computer Using Educators Association (ICUE)
   3. Association of Educational and Communication Technology (AECT)
   4. Educational Association (local, state, national)
   5. Other (please specify ____________________________).

9. How many educational conferences do you attend each year? ______

10. Please list below any professional journals that you read or subscribe to that deal in part or wholly with the area of distance education.
    ___________________________________________________________
    ___________________________________________________________
    ___________________________________________________________
11. Have you attended a Distance Education workshop/institute put on by Iowa Distance Education Alliance for the Iowa Star Schools Project?
   1. yes  2. no

12. How would you rate your knowledge about distance education?
   1. none  
   2. a little  
   3. a moderate amount  
   4. quite a bit  
   5. a great deal

13. Approximately how often have you used the ICN.
   1. never  
   2. a little  
   3. a moderate amount  
   4. quite a bit  
   5. a great deal

INFORMATION ABOUT YOUR SCHOOL DISTRICT AND SCHOOL

14. What is the approximate enrollment of your school district? ______

15. How many certified media specialists are in your district? ______

16. How many certified media specialists are in your building? ______

17. Does your school have someone other than you that is in charge of technology?
   1. yes  2. no

18. What grades do you serve in your school? ______________________

19. Do you have paid assistants? 1. yes  2. no (if no, skip to question 22)

20. How many paid assistants do you have?
   1. one  2. two  3. three  4. other (please specify)

21. Approximately how many hours per week do your assistants work for you?
    ______________________ total hours

22. Does your school library media center have access to computers?
   1. yes  2. no

23. Is your circulation system automated? 1. yes  2. no

24. Is your card catalog automated? 1. yes  2. no

25. Do you have a CD-ROM in the school library media center? 1. yes  2. no

26. Do you have a modem in the school library media center? 1. yes  2. no

27. Do you have a fax machine in the school library media center? 1. yes  2. no

28. Do you use Internet in the school library media center? 1. yes  2. no
29. Who makes the decisions about what new technology will be purchased for the school library media center?
   1. I do
   2. Administrator does
   3. District Technology Coordinator does
   4. School board does
   5. Other (please specify) ____________________________

30. Is the distance education classroom in your school district located in the building you serve?
   1. Yes
   2. No

31. Do you have a key to the distance education classroom?
   1. Yes
   2. No

32. List the positions of the people who have a key to the distance education classroom?
   ____________________________
   ____________________________

33. If a teacher in your school district wanted to use the ICN who would they contact?
   1. Administrator
   2. Technology coordinator
   3. Classroom teacher
   4. Media specialist
   5. Other (please specify) ____________________________

34. Who is in charge of distributing information about programs, courses and other events being offered over the ICN in your building?
   1. Administrator
   2. Technology coordinator
   3. Classroom teacher
   4. Media specialist
   5. Other (please specify) ____________________________

35. Who is in charge of maintaining and replacing equipment for the distance education classroom in your district?
   1. Administrator
   2. Technology coordinator
   3. Classroom teacher
   4. Media specialist
   5. Other (please specify) ____________________________

36. Who is charge of troubleshooting the signals being received and sent via distance education in your district?
   1. Administrator
   2. Technology coordinator
   3. Classroom teacher
   4. Media specialist
   5. Other (please specify) ____________________________

37. Who is in charge of repairing or replacing equipment used in the distance education classroom in your district?
   1. Administrator
   2. Technology coordinator
   3. Classroom teacher
   4. Media specialist
   5. Other (please specify) ____________________________
38. Do you work as a resource person with teachers from your school who are using the ICN classroom, i.e., providing needed materials?
   1. yes  2. no

39. Do you provide needed materials to students taking a distance education class?
   1. yes  2. no

40. Are you involved in training users of the ICN classroom?
   1. yes  2. no

Part II This part of the questionnaire is to determine the innovativeness of people who are involved in the innovation adoption process. Please circle only one and do not mark between the letters.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Moderately Agree</th>
<th>Undecided</th>
<th>Moderately Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My peers often ask me for advice or information.</td>
<td>SA</td>
<td>A</td>
<td>MA</td>
<td>U</td>
<td>MD</td>
<td>D</td>
</tr>
<tr>
<td>2. I enjoy trying out new ideas.</td>
<td>SA</td>
<td>A</td>
<td>MA</td>
<td>U</td>
<td>MD</td>
<td>D</td>
</tr>
<tr>
<td>3. I seek out new ways to do things.</td>
<td>SA</td>
<td>A</td>
<td>MA</td>
<td>U</td>
<td>MD</td>
<td>D</td>
</tr>
<tr>
<td>4. I am generally cautious about accepting new ideas.</td>
<td>SA</td>
<td>A</td>
<td>MA</td>
<td>U</td>
<td>MD</td>
<td>D</td>
</tr>
<tr>
<td>5. I frequently improvise methods for solving a problem when an answer is not apparent.</td>
<td>SA</td>
<td>A</td>
<td>MA</td>
<td>U</td>
<td>MD</td>
<td>D</td>
</tr>
<tr>
<td>6. I am suspicious of new inventions and new ways of thinking.</td>
<td>SA</td>
<td>A</td>
<td>MA</td>
<td>U</td>
<td>MD</td>
<td>D</td>
</tr>
<tr>
<td>7. I rarely trust new ideas until I can see whether the vast majority of people around me accept them.</td>
<td>SA</td>
<td>A</td>
<td>MA</td>
<td>U</td>
<td>MD</td>
<td>D</td>
</tr>
<tr>
<td>8. I feel that I am an influential member of my peer group.</td>
<td>SA</td>
<td>A</td>
<td>MA</td>
<td>U</td>
<td>MD</td>
<td>D</td>
</tr>
<tr>
<td>9. I consider myself to be creative and original in my thinking and behavior.</td>
<td>SA</td>
<td>A</td>
<td>MA</td>
<td>U</td>
<td>MD</td>
<td>D</td>
</tr>
<tr>
<td>10. I am aware that I am usually one of the last people in my group to accept something new.</td>
<td>SA</td>
<td>A</td>
<td>MA</td>
<td>U</td>
<td>MD</td>
<td>D</td>
</tr>
<tr>
<td>11. I am an inventive kind of person.</td>
<td>SA</td>
<td>A</td>
<td>MA</td>
<td>U</td>
<td>MD</td>
<td>D</td>
</tr>
<tr>
<td>12. I enjoy taking part in the leadership responsibilities of the groups I belong to.</td>
<td>SA</td>
<td>A</td>
<td>MA</td>
<td>U</td>
<td>MD</td>
<td>D</td>
</tr>
</tbody>
</table>
13. I am reluctant about adopting new ways of doing things until I see them working for people around me.
   SA   A   MA   U   MD   D   SD

14. I find it stimulating to be original in my thinking and behavior.
   SA   A   MA   U   MD   D   SD

15. I tend to feel that the old way of living and doing things is the best way.
   SA   A   MA   U   MD   D   SD

16. I am challenged by ambiguities and unsolved problems.
   SA   A   MA   U   MD   D   SD

17. I must see other people using new innovations before I will consider them.
   SA   A   MA   U   MD   D   SD

18. I am receptive to new ideas.
   SA   A   MA   U   MD   D   SD

19. I am challenged by unanswered questions.
   SA   A   MA   U   MD   D   SD

20. I often find myself skeptical of new ideas.
   SA   A   MA   U   MD   D   SD

Any additional thoughts or comments may be added here. Thank you.
APPENDIX C. LOERTSCHER’S TAXONOMY
The Library Media Specialist's Taxonomy

1. **NO INVOLVEMENT**
   The library media center is bypassed entirely.

2. **SELF-HELP WAREHOUSE**
   Facilities and materials are available for the self-starter.

3. **INDIVIDUAL REFERENCE ASSISTANCE**
   Students or teachers retrieve requested information or materials for specific needs.

4. **SPONTANEOUS INTERACTION AND GATHERING**
   Spur-of-the-moment activities and gathering of materials occur with no advance notice.

5. **CURSORY PLANNING**
   Informal and brief planning with teachers and students for library media center involvement—usually done in the hall, the teachers' lounge, the lunchroom, etc. (Here's an idea for an activity and new materials to use. Have you seen...? Can I get you a film?)

6. **PLANNED GATHERING**
   Gathering of materials is done in advance of class project upon teacher request.

7. **EVANGELISTIC OUTREACH**
   A concerted effort is made to promote the philosophy of the library media center program.

8. **SCHEDULED PLANNING IN THE SUPPORT ROLE**
   Formal planning is done with a teacher or group of students to supply materials or activities for a previously planned resource-based teaching unit or project.

9. **INSTRUCTIONAL DESIGN, LEVEL I**
   The library media specialist participates in every step of the development, execution, and evaluation of a resource-based teaching unit. LMC involvement is considered as enrichment or as supplementary.

10. **INSTRUCTIONAL DESIGN, LEVEL II**
    The library media center staff participates in resource-based teaching units where the entire unit content depends on the resources and activities of the LMC program.

11. **CURRICULUM DEVELOPMENT**
    Along with other educators, the library media specialist contributes to the planning and structure of what will actually be taught in the school or district.

![Diagram](https://via.placeholder.com/150)

Fig. 3.1. The library media specialist's taxonomy.
THE LIBRARY MEDIA CENTER
TAXONOMY EXPLAINED

The Solid Warehousing Services Building Block

Level 1—No involvement: The library media center is bypassed entirely.

Here the library media specialist, for whatever reason, makes no attempt to be involved in a particular sequence of instruction. Not every unit can be plugged into the center during the school day. A problem occurs, however, if nonuse is a habitual pattern for either teachers or students. Not all the teachers will ever be reached, nor will the students, but these nonusers should be in the minority. The library media specialist must never give up trying to work with the nonuser even though successes will be difficult to achieve.

Level 2—Self-help warehouse: Facilities and materials are available for the self-starter.

Level 2 is basic to the complete program of library media services. At this level, the library media specialist has organized materials and equipment for the browser. The center is inviting and attractive. Patrons can find the materials or equipment they need, know how to use them, and can check them out for use at home or in the classroom. This level involves the selection, acquisition, presentation, and maintenance of the collection. Services at this level are the kind that no one notices when they are running smoothly, but about which everyone complains when things go wrong.

The major problem with this level is that warehousing services expand to fill the time available. It is very easy to get stuck in the warehouse and never really progress beyond level 2. The warehouse is never finished. Books must get shelved, burned-out projection lamps replaced. An entire day can be filled with exhausting warehousing functions and will be unprofitable in terms of a solid contribution to education.

The Direct Services to Teachers and Students Building Block

Level 3—Individual reference assistance: Students or teachers retrieve requested information or materials for specific needs.

Here the library media specialist assumes the magician’s role: the ability to know where to locate important and trivial information and materials from a vast array of sources, whether these be in the LMC’s collection, in a neighboring LMC, from the district LMC, from the public library, from an academic library, or from a national network or database. Level 3 includes reading, viewing, and listening advisory services for students and teachers.

Movement toward the “information society” adds another dimension to level 3. Students will need to learn how to handle information from sophisticated databases and high technology sources. This level assumes that the library media specialist may at times deliver the information directly to the user, but will continually work to help patrons gain the skills they need to find and use information themselves.
Level 3 services can often dominate the time of the library media specialist, and because level of service is particularly interesting and stimulating, other levels of service can easily be pushed into the background.

**Level 4—Spontaneous interaction and gathering:** Spur-of-the-moment activities and gathering of materials occur with no advance notice.

During many instructional periods, a teacher and/or student will discover a new direction that is not in the instructional plan, yet is too exciting to neglect. The library media specialist might respond at a moment's notice with materials, resource people, production activities, research projects, games, or any other activity that capitalizes on the unique teaching moment. These instant projects might last a few minutes in a single class or might grow to involve the whole school for a semester or even a year.

Spontaneous services, however, might become an excuse for a lack of planning by teachers or turn into a babysitting service. For students, this spontaneous need and subsequent interaction can spark a lifelong interest and even direct career choices.

**Level 5—Cursory planning:** Informal and brief planning with teachers and students for library media center involvement—usually done in the hall, the teachers' lounge, the lunchroom. (Here's an idea for an activity and new materials to use. Have you seen...? Can I get you a...?)

When the teacher accepts the library media specialist as a source of ideas and the specialist blooms in this role, all kinds of great things can occur. Library media specialists collect back tricks: ideas that have worked from other teachers or other library media specialists, principals, from conventions attended, from professional journals, and from their own creative minds. The library media specialist knows the sources for help—people, materials, equipment—and knows where and how to get them. Teachers learn to depend on the library media specialist to generate solutions and end stagnation. Similar services are provided to individual students and groups of students.

Problems can develop at this level if the library media specialist is perceived as a pest rather than a source of ideas.

**Level 6—Planned gathering:** Gathering of materials is done in advance of class project or teacher request.

When there is time to communicate with the teacher about the topic of an upcoming unit, the library media specialist can assemble materials from many sources. Materials from the LMC must be gathered before the “eager beaver” students have a chance to raid the cache; neighboring schools can lend their materials; public libraries can be put on notice of an impending demand; materials from other libraries, rental sources, and free materials from agencies and businesses can be assembled. Given enough lead time, the library media specialist can flood the teacher with materials.

Gathering the right things at the right time for the right uses is no small task. Problems develop if the library media specialist collects too much—on the wrong levels—for the wrong objectives. A clear idea of exactly what is needed is essential if success is to be achieved.

**Level 7—Evangelistic outreach:** A concerted effort is made to promote the philosophy of the LMC program.
Here one thinks of a library media specialist who enthusiastically preaches the gospel of media through promotion, cultivation, stimulation, testimonial, recommendation, and selling, all with the concerted purpose of gaining converts among the students, the teaching staff, and the administration. This might include teaching in-service workshops to promote audiovisual production and/or use of audiovisual materials, showing teachers the various uses of equipment and materials and explaining how a medium can suit various ability and interest levels, promoting the usefulness of high interest/low reading-level books, or encouraging the use of interdisciplinary materials. For students, motivational campaigns are conducted to involve them in media experiences.

As with other types of evangelistic movements, the inattentive, the antagonistic, and the backsliders will be a problem. Promotional campaigns can backfire or be ineffective.

The Resource-Based Teaching Building Block

Level 8—Scheduled planning in the support role: Formal planning is done with a teacher or group of students to supply materials or activities for a previously planned resource-based teaching unit or project.

At this level the library media specialist has an opportunity to sit down with a teacher (twenty minutes is usually required) and see exactly what that teacher has in mind for a resource-based teaching unit of instruction. The library media specialist assumes a “servant” role; the teacher is the “master.” The library media specialist accepts without question the unit objectives formulated by the teacher and is willing to gather any material or perform any service or activity desired by the teacher (within reason, of course). The advantage of this level over level 6 is that the library media specialist thoroughly understands what will happen in a unit and is able to provide focused services rather than rely on guesswork or intuition, which a level 6 gathering effort might entail.

On occasion, students have independent projects in mind which need level 8 planning. Students served at this level are encouraged to take a leadership role, and the library media specialist demonstrates the support services of a library media center. The objective here is to promote responsibility, planning, creativity, and organizational skill in the individual or group of students who are working on a project.

The library media specialist on this level not only is able to discern needs but is also adept at drawing up activities, preparing materials, assigning responsibilities, and producing audiovisual or computer materials which would contribute to the success of the learning objectives.

The servant/master role of level 8 is satisfying at its best, but it neglects a true collegial relationship between the teacher and the library media specialist.

Level 9—Instructional design, level 1: The library media specialist participates in every step of the development, execution, and evaluation of an instructional unit. LMC involvement is considered as enrichment or as supplementary.

At this level, the library media specialist goes beyond the servant/master role and becomes a true colleague and educator with the teacher as a partner. Together, these two persons plan carefully for a successful educational experience. Formal planning for resource-based teaching begins far in advance and will require a number of preparatory planning sessions, planning while the unit is underway, and a formal evaluation session at the end. Here we think of a team approach, where neither partner exploits the other. It should be pointed out, however, that level 9
service does not necessarily require the library media specialist to spend major blocks of time in the classroom. Neither does it mean that the unit will be taught in the library media center. LMC activities are considered supplemental and enriching to the unit objectives. Learning experiences extend unit content and become growth opportunities for students. Often, individual student interests are explored, creative talents expressed, or discovery and inquiry learning fostered.

While supplementary and enriching experiences can be marvelous features of the LMC program, the central core of learning may not be addressed.

**Level 10—Instructional design, level II:** The library media center staff participates in resource-based teaching units where the entire unit content depends on the resources and activities of the LMC program.

At level 10, the teacher and the library media specialist design and carry out the unit so that the LMC activities form the core of the unit and are not supplementary to it. The library media specialist becomes as interested in learning as the teacher. All activities focus on the learning of unit content. If teaching an information skill or a production skill is planned, it is integrated into the unit, but the real focus of the unit is upon the subject-oriented concepts to be learned. At this level, the library media center is the heart of the instructional effort. Without the LMC’s cooperation, the unit would be inferior.

Level 10 experiences are those which library media specialists point to when they say “this LMC is the heart of an instructional program.” A problem might occur, however, if the partnership of teacher and library media specialist breaks down. The teacher can transfer the burden of instruction to the library media specialist and lose the advantage of joint participation. At level 10, the library media specialist still does not spend the same amount of time in the teaching mode as does the teacher. Some learning activities are conducted by the teacher alone, some by the team, and some by the library media specialist alone.

**Level 11—Curriculum development:** Along with other educators, the library media specialist contributes to the planning and structure of what will actually be taught in the school or district.

Curriculum development is more than just an invitation to attend curriculum meetings; it means that the library media specialist is recognized as a colleague and contributes meaningfully to planning. The knowledge of materials, sources, technology, present collections, and teaching/learning strategies makes the library media specialist a valuable asset as curricular changes are considered and implemented. The library media specialist will not be able to attend all of the curriculum committee meetings in all the disciplines on a regular basis, but can serve as a consultant to the committee. When a textbook is being adopted, the library media specialist can give the committee a clear idea of how the present library media center collection can support the philosophy and the daily requirements of that textbook. Advance planning for collection development can be done before the preferred text is adopted rather than trying to play a game of collection catch up.