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**Information Literacy Skills: Successful Cross-Curricular Integration
at the Secondary Level in New Jersey**

By

Susan T. Rohrman

A Thesis

Submitted in partial fulfillment of the requirements of the
Master of Arts Degree
of
The Graduate School
at
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Approved by

Assistant Professor

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ABSTRACT

Susan T. Rohrman. Information Literacy Skills: Successful Cross-Curricular Integration at the Secondary Level in New Jersey. 2000. Under the direction of Dr. Holly Willett, Program in School and Public Librarianship.

Focusing on information literacy skills instruction at the secondary level, the purposes of the field research were to examine the impact of national and state curriculum standards on library skills curriculum; to explore the instructional role of the school media specialist; and to create a model for successful information literacy skills projects. Field research was conducted at the media centers of two secondary schools, grades 9 - 12 in southern New Jersey. Two educational media specialists in secondary schools and their 10th grade Biology classes were observed during an instructional period. Application of information literacy skills was incorporated into the lessons and the cumulative projects designed collaboratively by the media specialist and the content area teacher. Skills assessments included scoring rubrics and performance observations. Qualitative data gathered included background information on the school, in-depth interviews with the media specialists, observations of instructional periods, and pre- and post-observation interviews. Findings revealed that the role of the media specialist is crucial to create inter-disciplinary projects in school districts where national and state standards have an impact on the information literacy skills curriculum. A model for projects that integrate content areas with information literacy skills was developed and is easily replicated.

MINI-ABSTRACT

Susan T. Rohrman. Information Literacy Skills: Successful Cross-Curricular Integration at the Secondary Level in New Jersey. 2000. Under the direction of Dr. Holly Willett, Program in School and Public Librarianship.

Field research determined that the role of the high school media specialist is crucial to create inter-disciplinary projects where national and state standards have an impact on the information literacy skills curriculum. A model for projects that integrate content areas with information literacy skills was developed and is easily replicated.

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“I can do all things through Him who strengthens me.”
Phillipians 4:13

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Chapter 1

Introduction

Today the mission of the school library media program focuses on offering programs and services that are centered on information literacy and that are designed around active authentic student learning as described in the information literacy standards for student learning. The goals of today's media program point to the development of a community of learners that is centered on the student and sustained by a creative, energetic library media program.

(American Association of School Librarians (AASL) [&] Association for Educational Technology (AECT), 1998, p. 2).

The basic mission of the school media program remains the same as when the first version of *Information Power* was published in 1988. The changes are in the tools the media specialist uses and in the end product created by the student. The new information literacy standards reflect these changes and are divided into three broad areas: information literacy; independent learning; and social responsibility. The above statement, which expresses the goals of the school library media program, directs the school media specialist to focus attention on the existing school media curriculum and instructional practices. Upon reflection, the school media specialist can compare what is real to what is ideal and can determine what steps need to be taken in her school in order to achieve integration of information literacy skills into the curriculum.

As in all areas of education, the media specialist is required to expand the horizon of the services already provided to the learning community. Each individual media specialist must determine the best way to accomplish this mission.

Before implementation of a new curriculum can occur, however, the school media specialist should ascertain the extent and the form of existing cross-curricular integration of information literacy skills at the secondary level. In addition, the role of the school media specialist must not be overlooked in this process.

In *Information Literacy: A clarification*, Linda Langford offers these thoughts,

Why have not the understandings and skills that inform information literacy become embedded in the classroom practices of teachers and educational systems? Is it because information literacy is understood as something that is teacher-librarian oriented and not as part of the general curriculum? There is a growing body of literature on information literacy in its own right and as a pedagogical twinning to other educational topics such as pre-service teachers, the information-literate school community, independent learners and information technology. The tying of information literacy as a concept to such educational issues should alert all stakeholders in the education arena that a shift in the educational thinking has occurred in that literacy is more than the ability to read and write. (1998, p. 2)

More to the point, what is the role of the school media specialist in the implementation and teaching of these skills? “As teacher-librarians are we responsible for some distinct concept referred to as information literacy or are we a part of a whole, promoting literacy through the development and encouragement of an array of skills that include information and thinking?” (Langford, 1998). Discussion of the role of the school library media specialist has been a continual topic in the professional literature.

As reported by Craver (1986) in *The changing role of the high school library media specialist, 1950-84: A survey of professional literature, standards and research studies*, Krentzman noted in *School Libraries: 1949-1950 A Summary* that “the librarian is in a particular strategic position to participate effectively and to provide some leadership in curriculum development.” In the ensuing fifty years since the publication of Krentzman’s study, the role of the school library media specialist as curriculum

consultant and teacher has emerged as an integral component in achieving the goals of the school's education program generally and the objectives of the content area curricula specifically.

The success or failure of the integrated curriculum rests with the school media specialist who has advanced her professional reputation as a curriculum developer and who has a firm grasp on the tenets of information literacy skills. With these qualities as her foundation, she is ready to lead her colleagues and students into the unmapped territory of the information literacy skills frontier. The ultimate goal of the project is to create a model of successful information literacy skills curricular integration that can be replicated in a variety of secondary school environments with only minor revisions.

Statement of the Problem

Although teacher librarians know about information literacy from their perspective and are well versed in the methodologies and frameworks that promote and extend their understanding of information literacy, research is needed that explores the attitudes and behaviors of classroom teachers and school leaders in the implementing of pedagogy that allows for the inclusion and development of information literacy as common practice. We know that lifelong learning is more than a lofty ideal; it is the outcome of the information literate society (Langford, 1998, p. 5).

The "development of information literacy as common practice" is at the heart of this research. The results of this study help educators to develop the curricular tools necessary for leveling the academic playing field as they shift the instructional objectives from "what do students know?" to "what can students do?" Many school media specialists are developing exciting instructional strategies for information literacy along with their content area colleagues; however those media specialists who have been less successful in communicating with their content area teachers in collaboratively planning

and developing cross-curricular projects may be more enthusiastic if given professional support in the form of a model for the characteristics of successful information literacy skills curricular integration.

Purpose or Objectives of the Research

Even a casual observer will note the broad disparity among school districts in existing curriculum development, hardware and software resources, technology planning and most importantly, the trained personnel to utilize and implement new instructional strategies. Although economic factors do play a role in the acquisition of hardware, financial advantages in and of themselves do not always guarantee the success of the instructional program. The experience of the researcher has shown that more often than not, “priceless” human resources make up for the dearth of educational tools and are able to achieve curricular goals in spite of what is unavailable.

The objective of this research was to offer a strategy to bridge the gap for those economically disadvantaged school districts by outlining steps to integrating information literacy skills into the existing curriculum. The methodology employed was field research. In *The Practice of Social Research*, Earl Babbie uses the term field research to include “methods of research sometimes referred to as participant observation, direct observation and case studies” (1998, p. 240). After study and analysis of two programs in southern New Jersey where information literacy skills are successfully implemented, the model for replication was created. Participating schools were offered anonymity for the purpose of confidentiality. The projected model for information literacy skills integration outlines and describes the steps the school media specialist can take to achieve successful curricular integration of information literacy skills.

The review of the literature describes national trends in curricular integration at the secondary level and offers a theoretical framework as the foundation for examination of current practices in New Jersey. The review includes the work of nationally renowned experts on the topic of integrated curriculum: Leslie Farmer, Carol Kulthau, Jamie McKenzie, Michael Eisenberg, Doug Johnson, and Paula Montgomery. Readings were gleaned not only from library journals but from educational journals as well. Keyword searches included, but were not limited to: “library curriculum”, “information literacy”, “curriculum integration”, “research skills”, and “collaboration”. Literature review was not limited to materials written regarding only the secondary level but included materials dealing with elementary and middle schools in order to ascertain any patterns of curriculum development and integration at these levels and their subsequent effects on students’ skill at the secondary level.

Conceptual Framework

The theoretical framework for this research has its roots not only in librarianship but also in education, technology, and psychology.

Contemporary learning theory describes the student as an active and engaged information user and underscores the importance of students’ developing information expertise. Cognitive psychologists define learning itself as the active building of knowledge through dynamic interaction with information and experience. Theorists in the information field contend that the information search process mirrors this description of the learning process: students actively seek to construct meaning from the sources they encounter and to create products that shape and communicate that meaning effectively. Core elements in both learning and information theory thus converge to suggest that developing expertise in accessing, evaluating, and using information is in fact the authentic learning that modern education seeks to promote (American Association of School Librarians (AASL) [&] Association for Educational Technology (AECT), 1998, p. 2).

Information literacy as a practice has its roots in education. The tools of information literacy are those of the technological age, and in order to understand the learner, one must turn to psychology. Media specialists must be versed in the rudiments of all three disciplines in order to become proficient in developing the skills necessary to educate today's students.

Carol Kulthau (1993) recommends the constructivist theory in the process approach to information literacy skills.

Constructivist theory provides a sound basis for library media programs in the information age school. Students are engaged in extensive problem-driven research incorporating their thoughts, actions and feelings in a holistic process. Beginning with their intuitive theories and prior constructs, they investigate emerging questions and share their new understandings in a collaborative environment. A constructivist perspective requires access to a wide range of materials for learning and advocates developing information skills for learning from a variety of sources. The information skills developed within the constructive process of learning may be applied readily in a wide range of educational contexts and for learning and problem solving in real life situations.

The dilemma for library media specialists is creating a constructivist learning environment while helping students to achieve the competencies outlined by state and national standards.

The new information literacy standards are national standards developed jointly by the AASL and the AECT and are published in the new and revised version of *Information Power: Building Partnerships for Learning* (1998). The standards are divided into three major areas: information literacy, independent learning and social responsibility. Figure 1.1 displays the nine standards.

Information Literacy

Standard 1 – The student who is information literate accesses information efficiently and effectively.

Standard 2 – The student who is information literate evaluates information critically and competently.

Standard 3 – The student who is information literate uses information accurately and creatively.

Independent Learning

Standard 4 – The student who is an independent learner is information literate and pursues information related to personal interests.

Standard 5 – The student who is an independent learner is information literate and appreciates literature and other creative expressions of information.

Standard 6 – The student who is an independent learner is information literate and strives for excellence in information seeking and knowledge generation.

Social Responsibility

Standard 7 – The student who contributes positively to the learning community and to society is information literate and recognizes the importance of information in a democratic society.

Standard 8 - The student who contributes positively to the learning community and to society is information literate and practices ethical behavior in regard to information and information technology.

Standard 9 - The student who contributes positively to the learning community and to society is information literate and participates effectively in groups to pursue and generate information.

Figure 1.1 - The Nine Information Literacy Standards for Student Learning

Hypotheses or Questions to be answered

Before the creation of a model for information literacy skills curriculum could begin, many questions had to be answered when observing secondary schools that have successfully integrated information literacy skills into the existing curriculum: What impact, if any, have *Information Power* (1998) and the *New Jersey Core Content Curriculum Standards* (1996) had on the development of library curriculum? Have the media specialists developed their own existing information literacy skills curriculum which has been recently updated in order to reflect the new standards as set forth in *Information Power* (1998) and the *New Jersey Core Content Curriculum Standards* (1996)? Is it possible to identify specific, successful cross-curricular projects that exemplify information literature instruction? What is the role of the library media specialist in the integration of information literacy skills into specific projects? What specific literacy skills are implemented into successful projects? How do school librarians communicate with teachers in order to achieve collaboration? What evaluation instruments are used to determine success or failure? The answers to these questions can be found in schools that are successfully preparing their students to meet the challenges of the 21st century.

Definitions of Terms

The following terms are described for the purposes of this study:

Information literacy. The ability to find and use information.

Secondary school. A school that includes grades nine through twelve.

School media specialist. A state certified teacher with a certificate of either Associate Media Specialist or Educational Media Specialist. “The essential link who

connects students, teachers, and others with the information resources they need in a student-centered library media program that is based on three central ideas: collaboration, leadership, and technology” (AASL [&] AECT ,1998, p. 4).

Assessment. The process of collecting, analyzing, and reporting data.
(AASL [&] AECT , 1998, p. 173).

Constructivism. “ . . .a theory of learning that describes the central role that learners’ ever-transforming mental schemes play in their cognitive growth” (Brooks and Brooks, 1999, p. 54).

The variables of the study include: information literacy skills curriculum; the cross-curricular projects; lesson plans of the school library media specialist and the content area teacher; evaluation instruments utilized; academic track of students observed; grade level of students observed; content areas observed; professional preparation of the school library media specialist; and the type of library schedule.

The limitations of the research were: the district factor grouping (DFG) of the schools selected for research; the librarian’s schedule of classes; the amount of time the researcher is permitted on-site to conduct observations; location where the class is conducted in the building; willingness of individuals to respond to questioning; and the existing library skills curriculum.

The delimitations of the study were: the on-site visits to participating schools; the classes observed; the teachers interviewed; and the geographic location of the schools.

Organization of the remainder of the study

Field research was conducted at two southern New Jersey high schools in Cape May County where curriculum integration is occurring. The schools were selected based

on their geographic proximity and their district factor grouping scores. The schools serve different geographic regions in Cape May County yet all are classified in the lower range of district factor group (DFG) as assigned by the New Jersey Department of Education (NJ DOE). The DFG of a school district is assigned using socio-economic criteria. Each of these schools has a DFG of DE or lower. The NJ DOE at its web site, <http://www.state.nj.us/njded/schools/dfgesc.htm>, states that

Socioeconomic status cannot be measured directly...therefore the DFG is a composite statistical index created using statistical procedures, a model of socioeconomic status, and input data for various socioeconomic traits. Seven indices were developed from the census data as follows: percentage of population with no high school diploma; percent with some college; occupation; population density; income; unemployment; poverty. These seven indices were utilized in a principal components analysis to produce a statistical score which was used to rank the districts. Districts were then grouped so that each group consisted of districts having factor scores within an interval of one tenth of the distance between the highest and lowest scores.

Schools vary slightly in total student population and the type of geographic region. The population of the schools included in the field research was the ninth through twelfth grade students, media specialists, content area teachers, and administrators.

Field observation differs from some other models of observation in that it is not just a data collecting activity. Frequently, perhaps typically, it is a theory generating activity as well. As a field researcher you'll seldom approach your task with precisely defined hypotheses to be tested. More typically you'll attempt to make sense out of an ongoing process that cannot be predicted in advance--making initial observations, developing tentative general conclusions that suggest particular types of further observations, making those observations and thereby revising your conclusions and so forth. (Babbie, 1998, p. 280).

The field researcher used both observation and in-depth interviewing techniques to collect data. The purpose of the research was specifically discussed with those being observed and interviewed. In general, qualitative data was collected, and in particular, the qualitative interview model was implemented. During the period of observation,

similarities, differences, patterns of interaction, common events and norms of behavior were noted in order to discover the universals that would then become components of the model for successful integration of information literacy skills into the curriculum. At the completion of the analysis, a conceptual model of the process for curriculum integration was created.

Chapter 2

Literature Review

“Although abundant theoretical viewpoints exist, guidelines are still developing for designing teaching/learning strategies that ensure higher-order outcomes in information literacy” (Carey, 1998, p. 5). The review of the literature describes national trends in curricular integration at the secondary level and offers a theoretical framework as the foundation for examination of current practices in New Jersey. The review includes the work of nationally renowned experts on the topic of integrated curriculum: Leslie Farmer, Carol Kulthau, Jamie McKenzie, Michael Eisenberg, Doug Johnson, and Paula Montgomery. Readings were gleaned not only from library journals but from educational journals as well. Keyword searches included but were not limited to: “library curriculum,” “information literacy,” “curriculum integration,” “research skills,” and “collaboration”. Literature review was not limited to materials written regarding only the secondary level but included materials dealing with elementary and middle schools in order to ascertain any patterns of curriculum development and integration at these levels and their subsequent effects on students’ skills at the secondary level.

While there are many individuals who guide the way for school librarians, there are several who are acknowledged experts in the field of school library media programs and their implementation. Some of these eminent scholars are Carol Kulthau, Michael Eisenberg, Jamie McKenzie, Leslie Farmer, Paula Montgomery, and Doug Johnson. Carol Kulthau is a professor of library science at Rutgers University. She is a prolific contributor to the field of research in school library media. Michael Eisenberg is

a director of Library and Information Studies at University of Washington in Seattle. He has developed and implemented the Big 6 Search Skills Rubric for student research. Jamie McKenzie has served as educational consultant to the Bellingham, WA school district and has edited *From Now On*, an informational technology e-zine. He has previously served as principal and superintendent in New Jersey. He is an internationally recognized speaker and is now serving as consultant to several school districts both in the United States and abroad. Paula Montgomery is publisher and editor of *School Library Media Activities Monthly*. Doug Johnson is director of Media and Technology, Mankato (Minnesota) Public Schools and a frequent contributor to *Book Report*, *Knowledge Quest*, and *School Library Journal*. The scholars are the 21st century pioneers in laying the foundations for research in the field of school library media.

The current parameters of the research include studies from a variety of focal points. In 1991, Paula Kay Montgomery researched the cognitive style and the level of cooperation between the library media specialist and the classroom teacher. Tallman and van Deusen (1994) assessed the impact of scheduling on curriculum consultation and information skills instruction. Todd (1995) showed how improved information literacy skills helped learners master content. The systematic instruction in electronic research skills was shown to be beneficial in the research conducted by Howe (1998). As in all fields of academic investigation, research in the information literacy skills area has a basis in theory.

The theoretical base of the research that is cited most often is constructivism. According to Martin Brooks and Jacqueline Grennon Brooks in *The Courage to be Constructivist*, (*Educational Leadership*, November 1999) constructivism is defined as

“a theory of learning that describes the central role that learners’ ever-transforming mental schemes play in their cognitive growth.” Brooks and Brooks identify five central tenets of constructivism:

1. Constructivist teachers seek and value students’ points of view.
2. Constructivist teachers structure lessons to challenge students’ suppositions.
3. Constructivist teachers recognize that students must attach relevance to the curriculum.
4. Constructivist teachers structure lessons around big ideas not small bits of information. Exposing students to wholes first helps them determine the relevant parts as they refine their understandings of the wholes.
5. Constructivist teachers assess student learning in the context of daily classroom investigations and not as separate events. Students demonstrate their knowledge every day in a variety of ways. Constructivism addresses how students learn.

(1999)

The constructivist theory has interesting implications for the traditional instructional practices because constructivists believe that restricting curriculum to focus on state testing preparation is not educating students. They also advocate curriculum development as guided by students’ interests. Constructivists would agree that a certain portion of the curriculum could be determined by state standards but the usual method of assessment, multiple choice tests, are not true measures of what students can do. The dilemma for library media specialists is creating a constructivist learning environment while helping students to achieve the competencies as measured by state and national standards.

National and State Guidelines – A Theoretical Framework

The specific vision for the contemporary school media programs as set forth in *Information Power: Building Partnerships for Learning* (1998) describes a new “conception of education” central to which is the learning community. The learning community includes “students, teachers, administrators and parents . . . all interconnected in a lifelong quest to understand and meet our constantly changing

information needs” (AASL [&] AECT ,1998, p. 2). Guidelines for school library programs for grades K-12 have been written and continually revised throughout the 20th century. The guidelines have been, and continue to be designed by panels consisting of representatives from various national education groups including administrators, teachers, librarians, and educators. The guidelines are then disseminated to all members of the participating groups and their school districts via professional organizations. The school librarians implement the guidelines as appropriate to their individual educational environments and then after a period of time, usually ten years, the school librarians begin calling for revision of the existing guidelines to reflect the current advances and trends.

Today, the guidelines have evolved from those that are input-oriented to those that are student-centered and performance-based. Carey offers a reason why this change has occurred. “One intent of national-level reports such as the Secretary’s Commission of Secondary Skills and America 2000 is to foster approaches to the education of our children that go beyond factual information to conceptual learning; beyond isolated rules to principles for application; and beyond textbooks, problems with known predictable solutions to real problems with solutions that are unique to students and their interpretations of their resources and their environments” (Carey, 1999, p. 4). An examination of the guidelines reflects a changing emphasis from resources and materials to the partnerships necessary for the success of the entire learning community.

As the language of the guidelines has evolved, the spirit of the guidelines has remained constant since 1920 when the National Education Association’s *Committee on Library Organization and Equipment* published guidelines for junior and senior high

schools. In 1925, the same organization published *Elementary School Library Standards*. The first national guidelines to differentiate between the school librarian and the public librarian were those published in 1945, *School Libraries for Today and Tomorrow*.

Standards for school library programs, prepared by the AASL, was published in 1960. The standards addressed changes since 1945 including the significant shift in the school librarian's role (which by 1960 emphasized serving students and teachers with direct student services that centered on enriching their personal and instructional activities. Besides urging that school librarians work closely with teachers in selection and use of all types of learning materials, the standards emphasized the school librarian's role as a teacher who was jointly responsible with the classroom teacher for teaching library skills as an integrated part of the classroom instruction. *Standards for school media programs* prepared by the AASL and the Department of AV Instruction (DAVI) of the NEA, now the AECT, in cooperation with several other national organizations was published in 1969. The name of the standards, the joint authorship and the use of such terms as media and media specialist emphasized the broad focus of the school library media program by that time. The school library media specialist's role included working with students to help them develop competence in listening, viewing, and reading skills.

In 1975, *Media Programs: District and School* was published as a collaborative effort of AASL and AECT. These standards reflected the influence of a systems approach to media services. *Media Programs: District and School* also provided sets of guiding principles to aid in local school program decisions as well as standards (AASL [&] AECT , 1998, p. 4).

This 1975 document was pivotal in that it addressed local needs at the building level. The approach became less philosophical and idealistic and more pragmatic and realistic. Each successive document continued this focus with more specific guidelines that could be adapted and implemented by individual districts.

For the year 2000 and beyond, the content of knowledge and the ways of accessing it continue to grow exponentially. *Information Power: Building Partnerships for Learning* (AASL [&] AECT, 1998) approaches this twofold growth by advocating the creation of a community of lifelong learners. Information literacy – understanding how to use and access information – is at the core of lifelong learning. Rather than a situation

specific document, the new *Information Power* (1998), provides broad guidelines with some helpful examples for local professionals to adapt to their individual learning situations within their school library media programs.

The current national guidelines are those found in *Information Power: Building Partnerships for Learning* (1998). The state guidelines are developed based on the national guidelines and are then aligned with the state of *New Jersey Core Curriculum Content Standards* (1996). The document, *Information Literacy Standards for Student Learning and the New Jersey Core Curriculum Content Standards April 1999*, (see Appendix) was prepared by school library media specialists throughout the state of New Jersey under the leadership of the Educational Media Association of New Jersey (EMAnj) and is available at <http://www.emanj.org/slApril99.html>. The instructional goals of the library media program specifically address information literacy:

1. The student will be able to locate, select, and retrieve a variety of books for reading.
2. The student will be able to develop strategies for effective information retrieval and management.
3. The student will be able to locate, select, and retrieve information.
4. The student will be able to understand, analyze, evaluate, synthesize, and apply appropriate information effectively.
5. The student will be able to access technological resources independently (EMAnj, 1999, p. 1).

In addition, the library media center program provides students and staff with a wide variety of literature experiences. These guidelines provide school librarians with a

foundation upon which to build yet the freedom to implement the guidelines tailored to the resources available and the students' and teachers' needs.

Technology transforms the role of the media specialist

In *The Changing Role of the High School Media Specialist, 1950 – 1984: A Survey of Professional Literature, Standards, and Research* (1986), Kathleen Craver reports “the instructional role of the media specialist in school library media centers has been described in the literature for almost half a century...their part in the instructional program of the school has been defined in several sets of national standards and in textbooks as early as the 1930's and 1940's.” Craver examined representative literature from 1950 – 1984 on the instructional role of the media specialist and important trends of educational philosophy and debate that denote the significant progress of the evolution of the high school media specialist.

Every decade brought new developments. In the 1950's, complacency would be an apt descriptor of administrators' attitudes towards high school libraries; only 37% of US secondary schools reported having a centralized library (Craver, 1986). A central topic in the literature at that time focused around the study hall concept of the library. The library was merely used as a book depository and a place to corral students during periods when they did not have classes, thereby turning the high school librarian into a study hall monitor. Craver explains that as early as 1950, the instructional role of the high school librarian was being defined and a call for an integration of information literacy skills into the curriculum was heard. The status of the librarian slowly changed from study hall monitor to educator. This new outlook and the introduction of audiovisual material into the curriculum turned the library into the “instructional media center”. In 1956, the

AASL issued a statement defining the role of the school librarian as “coordinator, consultant, and supervisor of instructional material at each level of school administration” (Craver, 1986). The growth of the school library media program and subsequently the role of the school media specialist reflected not only the educational climate of the decade but the political and social climate as well.

The launch of Sputnik in 1957 precipitated great changes in education in the United States as the country turned its attention to the educational system as a way to compete in the race for space. Federal funds became available under the National Defense Education Act (1958), the Library Services and Construction Act (1964), and the Elementary and Secondary Education Act (1965). New methods of instruction included independent study, advanced placement, and alternative schooling for potential dropouts. As the school community accepted the instructional media center concept, school librarians, now called “media specialists”, began to work cooperatively with teachers.

The 1970’s were a period of active learning as teachers and students began to work together as a team. Parents called for a “relevant” curriculum and a return to basics. Craver notes that the professional literature of the seventies was “characterized by a plethora of scholarly articles . . . that discussed various factors that affected the further development of the [media specialist’s] educational role” (Craver, 1986, p. 1). The instructional role of the educational media specialist was prominently featured in the literature but the reality of the situation was that real change was slow to come in the trenches.

The changing social milieu had an impact on schools and their programs in the 1980’s when the number of children from divorced homes doubled and two-thirds of all

The changing social milieu had an impact on schools and their programs in the 1980's when the number of children from divorced homes doubled and two-thirds of all mothers were now working outside the home. As socioeconomic factors began to negatively influence education, technology began to rapidly increase and have a positive influence. This expansion of technology, which continued through the end of the century, has had an enormous impact on the role and responsibilities of the educational media specialist.

As the role has been shifting from presenter of facts to facilitator of active learning, the range of resources required beyond the textbook has been increasing dramatically. School library media centers provide equitable access to an organized system of resources and information in all mediums included print and electronic.

Research Studies in Information Literacy Skills Integration

Michael Eisenberg in *Current Themes Regarding Library and Information Skills Instruction: Research Supporting and Research Lacking* (1992) contends that information skills research falls into four major categories representing beliefs about the value of library skills instruction, the value of information skills instruction, the nature and scope of information skills instruction, and effective approaches to teaching library and information skills. An accepted practice trend in information skills instruction centers on a process approach to learning emphasizing the development of transferable cognitive skills. While many in the field have created process models for information skills instruction, only Kulthau has developed the model based on research. Her findings were published in *Teaching the Library Research Process* (1985). Employing a variety of field research methodologies, including case study, observation, and contextual analysis,

Kulthau developed a six stage model of the research process. The six steps included initiation, selection, exploration, formulation, collection, and presentation.

Jean Van Deusen and Julie Tallman received the Highsmith Research Award for *The Impact of Scheduling on Curriculum Consultation and Information Skills Instruction* (1994).

Participants were asked to list the units of studies for classroom teachers for which they had either performed consulting tasks or taught related information skills. In addition respondents answered questions about the planning culture of the school – i.e., whether principals set expectations for collaboration between library media specialists and teachers or whether media specialists met with teachers at all,. Both scheduling and planning factors demonstrated significant relationships to the activity of library media specialists (Van Deusen and Tallman, 1994, p. 17)

Based on their findings, Tallman and Van Deusen recommend flexible scheduling, collaborative planning between teachers and media specialists, and communication with administrators regarding program goals.

Ross Todd, head of Information Studies at the University of Technology in Sydney, Australia has conducted several studies on the effect of integrated information skills instruction on Australian high school students. His findings are reported in one such study in *Integrated Information Skills Instruction: Does It Make a Difference?* (1995) published in *School Library Media Research Quarterly*. Focusing on integrated skills instruction at the secondary level, the main purpose of the research was to determine if a difference exists between a conventional content approach and an integrated content-information literacy skills approach. Year Seven female students at Marists Sisters college mixed-ability high school in Sydney, Australia participated. The effect of the method of instruction variable was measured by a post-test only comparison group design; two science classes of twenty students each in the treatment group and two

classes of twenty students each in the control group. Instruction took place over three terms. Treatment group classes received science instruction using strategies that included instruction in the steps of the information seeking process. Questionnaires were used to assess attitudes. Todd found that a positive correlation exists between integrated information skills instruction and students' mastery of content area material and information seeking skills. The effect of information skills instruction did not remain constant across the levels of ability suggesting that interaction may exist between ability levels and information skills instruction.

Conclusion and Summary

In Library Skills, Information Skills, and Information Literacy: Implications for Teaching and Learning (School Library Media Quarterly Online, 1998, p.3) James Carey states,

Where is the field of school media with regard to teaching library skills, information skills, and information literacy? With the constraints imposed on media specialists through staffing patterns, scheduling, and problems in breaking out of old perceptions of roles and responsibilities, it is difficult to bring together the cooperative arrangement among teachers, students, and media specialists that is required to implement a good information skills program. To that, add constraints imposed by state and district curriculum requirements, testing, accountability standards, and for the media specialist to move toward a full-blown, constructivist, information literacy program becomes a task of enormous proportion.

Research in the area of information literacy skills instruction is a critical need for educational media specialists in the 21st century. Practitioners must be able to implement instructional methods based on sound research and not just on theory. The subsequent development of instructional models and applications will do much to advance the education of the lifelong learners who have been jettisoned head first into the technological age.

Chapter 3

Methodology

Although teacher librarians know about information literacy from their perspective and are well versed in the methodologies and frameworks that promote and extend their understanding of information literacy, research is needed that explores the attitudes and behaviors of classroom teachers and school leaders in the implementing of pedagogy that allows for the inclusion and development of information literacy as common practice. We know that lifelong learning is more than a lofty ideal; it is the outcome of the information literate society (Langford, 1998, p. 1).

Introduction – Review of study’s purpose

The objective of this research is to offer a strategy for the teaching of information literacy skills at the ninth through twelfth grade levels by integrating those skills into the existing academic curriculum. After study and analysis of two media center programs in southern New Jersey where information literacy skills are successfully integrated, the model for replication was created. The projected model for information literacy skills integration outlines and describes the steps the school media specialist takes to achieve successful implementation.

Description of methodology selected

The methodology employed is field research. In *The Practice of Social Research*, Earl Babbie uses the term field research to include “methods of research sometimes

referred to as participant observation, direct observation and case studies” (1998, p.240)

Two components of field research utilized were the in-depth interview and observation of lessons taught by the media specialist. In-depth interviews were conducted with the media specialist both pre and post observation. During the pre-observation interview, the researcher determined background information about the media specialist, the school curriculum, the student population, and the physical resources of the media center. During the observation of classes, the researcher assumed the role of complete observer and did not participate in any way in the classes being observed. During the post-observation interview, the researcher conversed with the media specialist to determine strengths and weaknesses of the instructional period and successful components of the project.

Sample and Population

All schools studied are located in southern New Jersey and house grades 9 through 12. The schools were selected on the basis of their geographic proximity and their similar district factor grouping scores, both schools being at the lower end of the district factor grouping scores. The population for each school ranges from approximately 300 students to 1200 students. All schools offer a variety of academic tracks ranging from Special Education to Advanced Placement courses. All schools also offer extra-curricular activities including sports, clubs, and drama productions. In the reporting of data, schools will be labeled as High School A, High School B, etc. for purposes of confidentiality.

High School A is located in a town on a barrier island. In the school district, there are three schools – one primary school, one intermediate school, and one high school. High School A also has three sending districts, two of which are located offshore and one from another barrier island. The total student population is 1270, 6% of whom are classified as minorities.

High School B is located in a rural area of southern New Jersey and is a part of regional school district that contains two schools, a seventh and eighth grade school and a ninth through twelfth grade school. This regional district has sending districts from two rural areas and one barrier island. The student population of the high school is 1,150, 10% of whom are classified as minorities.

The NJ DOE has been ranking its schools by their socioeconomic status since 1975. This ranking is known as “district factor grouping” or DFG. The DFG is an index of socioeconomic status that is determined by using census data in the following categories: percentage of population with no high school diploma, percent with some college, occupation, population density, income, unemployment, and poverty. These categories are used to produce a statistical score that is used to rank the districts. The eight groupings of school districts are based on the 1990 census and are classified as follows from lowest to highest: A, B, CD, DE, FG, GH, I, and J. Both High School A and High School B are at the lower end of the scale. High School A is in DFG DE while High School B is in DFG B. Table 3.1 shows the breakdown of number of districts per grouping in the entire state of New Jersey.

Table 3.1

Total Number of Districts in Each District Factor Grouping (DFG) in New Jersey

<u>DFG</u>	<u>No. of districts</u>
A	35
B	78
CD	75
DE	100
FG	87
GH	78
I	105
J	15

Instrumentation and Data Collection

The qualitative in-depth interview is essentially a conversation in which the interviewer establishes a general direction for the conversation and pursues specific topics raised by the respondent. Ideally, the respondent does most of the talking (Babbie, 1998, p. 290)

Interview protocol (see Appendix) was developed with a focus on eliciting background information. The interview protocol was used as a basis for questioning and a jumping off point for discussion, during the pre-observation session. Babbie reports that Steinar Kvale has described the seven stages of the interview process: thematizing – clarifying the purpose of the interviews and the concepts to be explored; designing – laying out the process; interviewing; transcribing; analyzing; verifying; and reporting (Babbie, 1998, p. 292). All of these steps were incorporated into the research plan.

Data Analysis Plan

An analysis of the data includes assessment of the similarities and differences of all schools. A comparison of quantitative data and qualitative data leads to a determination of norms and universals. It is the discerning of norms and universals that lead to the components of the model for integrating information literacy skills into the curriculum. The projected model for information literacy skills implementation will outline and describe the steps the school media specialist will take to achieve successful integration of information literacy skills into the existing curriculum. Based on the researcher's background of experience, the projected components of the model may include, but may not be limited to, the following: communication, formulation, collaboration, instruction, evaluation, reflection, and revision. Communication is the critical first step in which the school library media specialist approaches the content area teacher. The school library media specialist engages that teacher in a conversation about how she can integrate information literacy within the existing content area curriculum.

After specific information is given to the library media specialist by the content area teacher, she can then formulate an idea for integration of information literacy skills into a unit of study. The next step is the beginning of the collaborative process for the teacher and the school media specialist. These two educators determine what specific course content will be utilized to integrate selected information literacy skills, what behavioral objectives will be set, what presentation methods and student activities will be incorporated and how the students will be evaluated. The fourth step is instruction to the students. The fifth step is an evaluation of the lesson from the perspective of those involved directly in the process-school library media specialist, teacher, and students.

The final step of the model is to reflect on the experience and revise where reflection dictates. More specific details as to planning time, curricular project development, and presentation methods were revealed during the field research. It is important to note at this juncture that all components of the model are only theoretical and were altered as dictated by the field research. However, even a theoretical model is crucial in providing the researcher with a starting point for research.

Chapter 4

Presentation and Analysis of the Data

School libraries used to have librarians. The general roles of the librarian were to manage a collection of print materials, promote reading and a love of good literature and teach children how to find things in the library. . . Teaching children to find information was circumscribed by the forms of information available, primarily requiring use of card catalogs, indexes, guide words. . . Then rapid change began. . . School libraries and librarians were replaced by media centers and media specialists. The Information Age was beginning to touch schools, and as formats and sources of information proliferated, the question in media centers changed from “How do I find information in a limited number of resources?” to “How do I choose information that is most appropriate for my needs from a seemingly unlimited number of resources?” Clearly the focus on tool skills that were specific to a particular information resource shifted to a focus on problem-solving skills that generalized across many information resources (Carey, 1998, p.1).

Background Information

Three high schools in southern New Jersey were originally selected for field research; however, only two of those schools would agree to participate. All media specialists were contacted after permission for the research was granted by the Rowan University Institutional Review Board. High School A and High School B participated while High School C would not agree even when guaranteed confidentiality. The media specialist of High School C stated that “there was nothing to observe as all instruction for the year had been completed.” Permission was granted by the media specialists with the approval of the administrators.

High School A. High School A is located in a town on a barrier island in southern New Jersey. There are three sending districts from rural areas. The total school enrollment is 1270. There is an 8% minority population. Only 12% of the total student population is on the free and reduced school lunch program. One hundred percent of the

students speak English as their first language. The curriculum offered includes a variety of academic tracks including Advanced Placement and Honors, College Preparatory, General, Business, and Special Education. There is a wide array of extra-curricular activities including sports, clubs, and dramatic productions. High School A is in District Factor Grouping DE.

High School B. High School B is located in a rural area of southern New Jersey and is a part of regional school district which contains two schools - a seventh and eighth grade school and a ninth through twelfth grade school. This regional district has sending districts from two rural areas and one barrier island. The student population of the high school is 1,150, 10% of whom are classified as minorities, 23% of whom are on the free and reduced lunch plan and 100% of whom speak English as their first language. The curriculum offered includes a variety of academic tracks including Advanced Placement and Honors, College Preparatory, General, Business, and Special Education. There is a wide array of extra-curricular activities including sports, clubs, and dramatic productions. High School B is in District Factor Grouping B.

Physical Facilities and Resources of Media Centers

High School A. The media center at High School A is in a space of 20,000 square feet. There is a 3M security system at the entrance to the library. There are separate rooms for periodical storage, microfilm storage, and audiovisual storage. Adjoining the library is a computer lab with 25 workstations and one printer. There is one copier and one laminator on the floor of the library. The media specialist and her secretary share a single office. Behind the circulation desk are two circulation computers which utilize the Winnebago Circulation program. On the main floor of the library, directly in front of the

circulation desk, are 14 networked IBM workstations with Winnebago automated catalog. These are arranged in a “U” shape. In the center of the “U” is a TV-ator for instructional use. There are separate areas for reading, class instruction, and study hall. The maximum occupancy is 472, but the average number of students in the library at one time is approximately 200.

The total collection is 60,000 volumes in a variety of media – print, audio-visual, CD-ROM, and periodicals. There is a professional section for faculty use, a children’s literature section, a pamphlet file, 120 periodicals, books on tape, and books written in French, Latin, Greek, and Spanish. The children’s literature section is used by the high school reading tutors who work with elementary students. All of the computer workstations have a variety of electronic databases including EBSCOHost, SIRS Researcher, SIRS Discoverer, and H. W. Wilson Current Biography. All of the computers are networked and have Internet access.

The library materials budget for the 1999 –2000 academic year is \$37,000; however this figure is not indicative of the average budget. Funds were added this year to make up for budget cuts that occurred in previous years. The library materials budget for the 2000 – 2001 academic year is anticipated to be approximately \$20,000. This amount includes the purchase of books, periodicals, newspapers, electronic databases, CD-ROMS, videotapes, audio-visual equipment, cassette tapes, cataloging and processing of library materials, and technical support agreements for automated circulation and cataloging.

High School B. The media center of High School B is in a space of 8,000 square feet. There is a 3M security system at the entrance to the library. Behind the circulation

desk are two circulating computers that utilize the Follett Circulation system. Behind the library, there is one large room for periodical storage and audiovisual storage. Next to the circulation desk are 6 OPAC stations with the Follett automated catalog. There is one office for the librarian. On the main floor of the library, there is seating for approximately 36 students. There is a separate area for reading with seating for 10.

Adjoining the library is a computer lab with 16 workstations and one TV-ator. All printing is routed to one of two printers that are behind the circulation desk. There is one color printer and one black and white printer. Also adjoining the library, next to the computer lab, is a conference room with a large table and seating for 15. There is one copier machine on the floor of the library for which the charge is \$.15 per page. Students are not charged for black and white printer pages if the printing is for necessary research for an academic project. When printing for personal use, they are charged \$.10 a page for black and white, and \$.25 a page for color.

The total collection is 20,000 volumes in a variety of media – print, audio-visual, and periodicals, and CD-ROM. There is a pamphlet file, 75 periodicals, books on tape, and a children's literature section. The children's literature section is used by the high school reading tutors who work with elementary students. All of the computer workstations have a variety of electronic databases including EBSCOHost, SIRS Researcher, SIRS Discoverer, Grolier's Online, and Search Bank.

The library budget for the 1999 –2000 academic year is \$60,000 and this figure is indicative of the average budget. The budget for the 2000 – 2001 academic year is anticipated to be approximately \$55,000. Included in this amount are funds for books,

online databases, audiovisual materials, periodicals, and audiovisual equipment. Table 4.1 shows a summary comparison of physical resources.

Table 4.1

Summary comparison of physical resources

Resources	High School A (DFG- DE)	High School B (DFG-B)
Square footage	20,000	6,000
Total # of items in Collection	60,000	20,000
Automated circulation and Catalog	Winnebago	Follett
OPACs	20	6
Computer lab	25 stations	16 stations
On-line Databases	Yes	Yes
Periodicals	120	75
Seating	200	45
Average Yearly Budget	\$20,000	\$55,000
Total # of students	1270 students	1150 students

Pre-Observation Interviews

Media Specialist A. The media specialist at High School A has been in that position for 16 years. She has a B.S. in Education and Library Science from Clarion State College in Pennsylvania. She is also certified in English education grades 7 – 12 in

New Jersey. She has a Master's degree in Library Science from Rutgers University. She had previously worked as a research intern at the AT & T World Headquarters and for the research department of IBM. She has also attended the University of Valencia in Spain. She is a member of many professional organizations including the American Library Association (ALA), the New Jersey Library Association (NJLA), the Educational Media Association of New Jersey (EMAnj), and the Atlantic and Cape May County Educational Media Association (ATCAP). She attends the meetings of ATCAP on a regular basis. Every year she attends the professional conferences of NJLA and EMAnj. If the ALA convention is within a reasonable amount of driving time from home, she attends that also.

The librarian at High School "A" has the title of Educational Media Specialist. She is the only professional librarian in her school. She has one full-time secretary and two full-time aides. She teaches approximately five classes every day which is the usual class load for a high school teacher on a flexible schedule. She teaches an orientation to the library unit with the ninth graders each fall in conjunction with their English classes. She collaboratively works most often with the English, social studies, science and health departments. Her teaching responsibilities include developing lessons, grading papers, and evaluating projects. Her lessons most often center around library skills at the ninth and tenth grade levels and the research paper at the eleventh and twelfth grade levels. Educational Media Specialist A initiates formal collaboration with her content area colleagues by attending department meetings and working extensively with the ninth grade English curriculum. She also helps to develop curriculum for new courses that are being taught.

Informally, she initiates collaboration by forwarding information about new materials to the appropriate faculty members and meeting with the teachers in the faculty room during preparation time.

Educational Media Specialist A is well versed in the new *Information Power: Building Partnerships for Learning* (1998). There is a library curriculum including a scope and sequence chart available which incorporates information literacy skills. This curriculum was last revised in 1995 and will be revised again in September 2000.

Educational Media Specialist A incorporates information literacy skills and the use of technology into her lessons. Students and parents have signed an Acceptable Use Policy. Students are instructed using both print and electronic media. Students are also taught how to evaluate research sources. Students demonstrate proficiency in information literacy skills, independent learning, and social responsibility. Educational Media specialist A does not incorporate any one research skills matrix, such as Eisenberg and Johnson's Big 6, unless specifically requested to do so by the teacher with whom she is collaborating.

During the course of her long tenure, Educational Media Specialist A has worked collaboratively with faculty members to develop many projects. The least successful project, in her estimation, was a short story project. The project involved students researching the literary criticism of various American short story writers after having completed reading and studying short stories in their class. After completing the research, the students were asked to write their own short stories incorporating specific elements given to them by the teacher and the media specialist. The short stories were intended to be the culminating product of the project and as such were evaluated and

assessed. The students were able to complete the research but the short stories were very contrived and unrealistic. Even though the research was good, the product was not an appropriate reflection of what the students had actually learned during the process. Upon reflection, the Educational Media Specialist has determined that more collaboration and planning between herself and the teacher would have yielded a more appropriate project and successful project.

The most successful project was one developed with an English teacher in which students researched the life and times of William Shakespeare. The end project was a newspaper which included feature articles, recipes, fashions, and news articles. Students worked in teams and the “Shakespeare Papers” were displayed at the local public library during the month of April in celebration of Shakespeare’s birthday.

Media Specialist B. The media specialist at High School B has been in that position for 4 years. She has a B.S. in Education and Library Science from Bob Jones University in South Carolina. She is also certified in elementary education grades K – 6 in New Jersey. She has a Master’s degree in School and Public Librarianship from Rowan University. She had previously worked as the children’s librarian at the county library for five years. Previous to her job at the county library, she was a third and fourth grade classroom teacher. She is not a member of any professional organizations. She does however attend one day of the EMAnj conference on a sporadic, not yearly, basis.

The librarian at High School B has the title of Educational Media Specialist. She is also considered to be a department head and in this capacity attends all liaison meetings with administrators. She is the only professional librarian at her school. She works with one full-time aide and one part-time aide. She teaches approximately five

classes every day which is the usual class load for a high school teacher on a flexible schedule. She teaches an orientation to the library unit with the ninth graders each fall in conjunction with their English classes. She collaboratively works most often with the social studies, science, and special education departments. Students in the special education program account for 25% of the total enrollment of the school. Her teaching responsibilities include developing lessons, and evaluating projects. Her lessons most often center around library skills at the ninth and tenth grade levels and the research paper at the eleventh and twelfth grade levels. Educational Media Specialist B initiates formal collaboration with her content area colleagues by attending department meetings. Informally, she initiates collaboration by forwarding information about new materials to the appropriate faculty members and by meeting with the teachers in the faculty room during prep time.

Educational Media Specialist B is familiar with the new information literacy standards in *Information Power: Building Partnerships for Learning* (1998). There is a library curriculum including a scope and sequence chart available that incorporates information literacy skills. This curriculum was last revised in 1998 and will be revised again in September 2000. The curriculum is the result of articulation between herself and the junior high librarian. Usually, the librarians are asked by the curriculum coordinator to revise the curriculum every year.

Educational Media Specialist B incorporates information literacy skills and the use of technology into her lessons. Students and parents have signed an Acceptable Use Policy. Students are instructed using both print and electronic media. Students are also

taught how to evaluate research sources. Students demonstrate proficiency in information literacy skills, independent learning, and social responsibility.

Educational Media Specialist B has worked collaboratively with faculty members to develop many projects. The least successful project, in her estimation, was an Internet project with a social studies teacher. The project involved students researching one particular web site after studying historical information in class. There was virtually no collaborative planning between the teacher and the media specialist. When the teacher brought the class to the library, he hand wrote the web address several times on pieces of paper and gave it out to several, not all, students. The students with the web address had to share it with those that did not have it. When students tried to log on to the site, their access was blocked by the filtering software. The teacher had not visited the site himself before bringing the class to the library. Upon reflection, the educational media specialist has determined that more collaboration and planning between herself and the teacher would have yielded a more appropriate lesson and successful project.

The most successful project was one developed with an art teacher called "Art Link". The educational media specialist and the art teacher designed a special Internet project for the art students. The web master for the school district posted the special web site for the art students and linked it to the high school's home page. All project information and links on were posted on the site so that students could come to the library and work at their own convenience and also get individual instruction from the media specialist.

Observations

Media Specialist A. Educational Media Specialist A was observed teaching a General Biology I class with tenth grade special education students. She had collaborated previously with the science teacher and had planned a lesson which focused on the first three information literacy standards: (1) The student who is information literate accesses information efficiently and effectively; (2) The student who is information literate evaluates information critically and competently; and (3) The student who is information literate uses information accurately and creatively (AASL [&] AECT, 1998, p. 8). The lesson plan specifically mentioned these standards. There were ten students present on that day with three students absent.

Students were to research information on an endangered species, selecting their choice from a list supplied by the media specialist. Students were to use the online databases and the Internet during the first class period and print resources during the next class period. Students had to use a minimum of three different resources. Students would then incorporate their information into a written report one to one and a half pages long with a bibliography of sources. As a culminating activity, students had to make a display poster illustrating the information they learned about the endangered species they had selected to research. Posters would be displayed in the library at the conclusion of the project.

Students were first seated at the table and chairs before moving over to the computer workstations that are located across from the circulation desk. Explicit written instructions and endangered species topic lists were distributed to all students (see Appendix). During this time, the educational media specialist instructed students in the

databases they would be using, the search terms that would be most effective, and alternative search terms to use when narrowing a search whose results were too broad. During this time, all students were attentive and taking notes. The science teacher was seated at a table along with the students and paying attention and taking notes as well.

After moving to the computer workstations, the educational media specialist instructed students on how to log on to the EBSCOHost online periodical database. All students were proficient in basic computer skills. After students had logged on to EBSCOHost, the media specialist instructed the students in the difference between the full text of the article and the abstract of an article. Students then viewed each one for purposes of comparison. Students then began independently searching for articles related to their topic on EBSCOHost. Both the teacher and the media specialist circulated among the workstations and gave individual help to those students who needed it.

When the media specialist was satisfied that all students had received some information from EBSCOHost, she asked them to go to an Internet search engine other than Yahoo. She suggested Alta Vista and all of the students complied. The media specialist explained that Yahoo only indexes 7% of all of the sites posted on the Internet which means that 93% of the sites are not searched. Students were offered ideas on which web sites may be most useful in this project – zoos, marine mammal stranding centers, and *National Geographic*.

After one student searched on his topic, he found a site on endangered species which had been posted by a fifth grade class in Oklahoma. The media specialist seized this teachable moment to instruct the students on the evaluation of web sites including the authority of web site authors. Students left their workstations to look at the fifth grade

web site on their classmate's monitor. Students were able to discover misinformation the fifth graders had posted. With a point well taken, students then returned to their own workstations and resumed working until the bell rang. All students had printed out at least three sources from that class period. Before leaving, students were reminded that they would meet in the library again the next day when they would get the opportunity to work with the print materials. Students were enthused about the projects and indicated that they were eager to return the next day.

Media Specialist B. Educational Media Specialist B was observed teaching a College Preparatory Biology I class with tenth grade students. This class of thirty students included several special education students who worked with an in-class support teacher. The media specialist had collaborated previously with the biology teacher and planned a lesson which focused on the first three information literacy standards which are in the information literacy division: (1) The student who is information literate accesses information efficiently and effectively; (2) The student who is information literate evaluates information critically and competently; and (3) The student who is information literate uses information accurately and creatively (AASL [&] AECT, 1998, p.8). The lesson plan specifically mentioned these standards.

Students were to research information on a specific topic of their own choosing that would be found in the broad categories of diseases or genetics. The biology teacher had to approve the topic before students could begin researching. Students had to use a minimum of ten different resources. Students would then incorporate their information into a written report, four to six pages long with a bibliography of sources. Students used the online databases, the Internet, and the print resources during the class period.

Students were first seated in the computer lab that is adjacent to the library. Students sat with partners at the 16 workstations. As a warm up exercise, the educational media specialist used the TV-ator to show the students a website which was designed using computer animation called “Alien Song”. She informed the students that the animation took one man 250 hours to design. When the website was finished and posted, he was contacted and subsequently hired by Pixar Studios, the company that created the first computer animation full length feature movie, *Toy Story*. She told the students if they had an interest in the area of computer design and animation and were willing to work hard, they too could achieve success.

Explicit written instructions explaining how to log on to databases, which search engines to use, and how to search the online school library catalog were distributed to all students (see Appendix). Then, the educational media specialist instructed students in the databases they would be using, the search terms that would be most effective, and alternative search terms to use when narrowing a search whose results were too broad. During this time, all students were attentive and quiet while seated at the workstations. The biology teacher and special education inclusion teacher were standing on opposite sides on the far side of the lab.

The educational media specialist then used a previously prepared flip chart to illustrate Boolean searching using the terms “diabetes”, “cloning”, and “leukemia”. Students asked questions and the educational media specialist clarified any confusion that existed. The media specialist also questioned the students and drew their attention to evaluating the website and to question the authority of the website. The educational media specialist instructed students on how to log on to the EBSCOHost online

periodical database. After students had logged on to EBSCOHost, the media specialist instructed the students in the difference between the full text of the article and the abstract of an article. Students then viewed each one for purposes of comparison. Students then began independently searching for articles related to their topic on EBSCOHost. As all students were proficient in basic computer skills, they immediately began searching for articles. The teachers and the media specialist circulated among the workstations and gave individual help to those students who needed it. After students had selected and printed three articles from EBSCOHost, they began moving out to the main floor of the library where they collected their printed articles from the circulation desk. They then worked with print materials for the rest of the period.

Post-Observation Interviews

Media specialist A. In conversation after the observation of the instructional period, Educational Media Specialist A indicated that she was satisfied with the students' progress during the class period. Students were attentive and were able to apply information literacy skills in their search for resources. Observation of the students by the teachers was an informal performance assessment. When students had questions, they were not intimidated about asking for help. They also exhibited transfer of skills from previous experience in searching for information. After instruction and with the help of their teachers, students were able to meet the objectives of the lesson. Students participated in an on-going peer evaluation of the work in progress. Upon reflection, the media specialist determined that this project had the elements of every successful cross-curricular project – collaboration and preparation by teachers, opportunity for students'

individuality and creativity, incorporation of both print and electronic resources, evaluation of end product by both teacher and media specialist.

Media Specialist B. In conversation after the observation of the instructional period, Educational Media Specialist B indicated that she was satisfied with students' progress during the class period. Students were attentive and were able to apply information literacy skills in their search for resources. All students appeared to be efficient locaters of information and exemplary in their computer skills. In general, students did not have many questions. The questions posed however, reflected higher level thinking skills in students' critical evaluation of resources. All of the teachers were pleased with this demonstration of cognitive ability on the part of the students. Upon reflection, the educational media specialist determined that this project had the elements of every successful cross-curricular project – collaboration and preparation by teachers, a structured lesson, step-by-step directions for students, and evaluation of end product by both teacher and media specialist.

Analysis of the Data

An analysis of the data reveals that there are many major similarities and few minor differences in the programs that were observed. Similarities included: the positive impact of the national and state standards on the information literacy skills curriculum; the professional preparation of the media specialist; the content areas most often integrated with information literacy skills curriculum; the media specialist collaboration with the teacher; the educational approach adopted by the media specialist; the approachability of the media specialist, the hands-on method of instruction; access to technological hardware and electronic resources; media specialist-constructed flexible

schedule; the number of classes seen each week by the media specialist; and a supportive administration.

Both media specialists were aware of the new information literacy standards at the national level and the aligning of the *New Jersey Core Curriculum Content Area Standards* (NJ DOE, 1996) at the state level. This is indicative of the professionalism of the media specialists who remain current in their field. Both media specialists hold Master's degrees in librarianship and both are certified teachers who have spent time in the classroom. Even though they vary in their years of experience in the library and the amount of time they devote to outside professional organizations, they both are committed professionals.

The content areas that the media specialists work most often with are English, social studies, and science. Both media specialists have implemented successful collaborative projects in these areas as well as others. The special education departments at both schools have taken advantage of working in the library with their students and again, thriving collaboration has been the result. The key to a flourishing program is the media specialist's willingness to take the extra steps, formally and informally, to initiate collaboration with the faculty.

The approachability of the media specialist yields positive results not only with teachers but with students as well. Both media specialists used winning attitudes and positive reinforcement with students to encourage them in their research. Effective questioning strategies were also employed during individual coaching moments with students. Students enjoyed the hands-on approach to learning and a sense of responsibility for their work was the result.

The differences are media specialists' involvement in professional organizations, the amount of funding, the size of the collection, the physical size of the facility, and the amount of support staff. Only one of the media specialists is involved in any professional organizations. The media centers had budgets that differed by approximately \$30,000. The size of the collections differed by 40,000 volumes. One media center is literally the size of a football field while the other is much smaller. One media center is staffed by four people while the other is staffed by two and a half. Ironically, the total student enrollment differs only by approximately 100 students. The media center with the larger budget has the smaller collection and a smaller facility. The instructional approaches however, are the same.

The universals are: recently revised curricula which reflect the integration of information literacy skills into the library skills curriculum; willingness on the part of the media specialist to seek collaboration with content area colleagues; collaborative development, planning, and preparation of projects between the content area teachers and the media specialist; flexible scheduling which maximizes the amount of classes instructed; and the students' recognition and ownership of the importance of their own education.

Summary

Focusing on information literacy skills instruction at the secondary level, the purposes of the field research were to examine the impact of national and state curriculum standards on library skills curriculum; to explore the instructional role of the school media specialist; and to create a model for successful information literacy skills projects. Qualitative data gathered included background information on the school, in-

depth interviews with the media specialists, observations of instructional periods, and pre- and post-observation interviews. Findings revealed that the role of the media specialist is crucial to create inter-disciplinary projects in school districts where national and state standards have an impact on the information literacy skills curriculum.

Chapter 5

A Model for Successful Cross-Curricular Integration of Information Literacy Skills

“The purpose of theorizing, building models, and conducting research in problem solving processes is, of course, to inform our practice of teaching” (Carey, 1999, p. 14). Before the creation of a model for information literacy skills curriculum could begin, many questions were answered during the field research. The answers to these questions, posed in Chapter 1, laid the foundation for the building of a model of successful cross-curricular projects which integrate information literacy skills.

Conclusions

What effect, if any, have *Information Power: Building partnerships for learning* (AASL [&] AECT, 1998) and the *New Jersey Core Content Curriculum Standards* (NJ DOE, 1996) had on the development of library curriculum in these two schools? Both of these documents have had a major impact on the development of library curriculum in these two schools. *Information Power* (1998) gave these two media specialists a blueprint to follow during the construction of their specific district’s curricula. EMAnj has aligned the *New Jersey Core Content Curriculum Standards* (NJ DOE, 1996) with the information literacy standards that give these two media specialists even more practical guidance in the development of curriculum. A positive consequence of these standards that cannot be ignored is that the standards are intended to standardize desired outcomes at both a national and state level. Even though there will be individual nuances of difference in the specific curriculum of school districts, the skills that are taught will be approximately the same across the country and across the state.

Is there an existing information literacy skills curriculum which has been recently updated in order to reflect the new standards as set forth in *Information Power* (AASL [&] AECT, 1998) and the *New Jersey Core Content Curriculum Standards* (NJ DOE, 1996)? The schools studied during the field research may be indicative of what is happening to library skills and information literacy skills curriculum across the country. Curriculum must be revised to reflect the changing needs of the students and the technological changes in society. Because the technology advances so rapidly, curriculum is quickly outdated and must be updated more frequently in order to be current. What was appropriate instructionally five years ago is no longer appropriate today.

What is the role of the library media specialist in the integration of information literacy skills into specific projects? The role of the media specialist is critical in the integration of information literacy skills into the content area curriculum. *The 1999 National Survey of Teacher's Use of Digital Content*, sponsored by *Education Week*, surveyed 1407 teachers. The survey was conducted by Education Market Research and reported in the September 23, 1999 issue of *Education Week*. Some of the key results from the survey related to integrating technology and information skills into the curriculum. Sixty-one percent of the teachers responding use the Internet for instruction, but only 29% of the teachers responding had in-service training on curriculum integration. In many districts, it is the media specialist who conducts the technology in-service training for her colleagues. It is up to the media specialist to be the motivating force behind the integration of information literacy skills into the curriculum, as well. Only when the media specialist reaches out to collaborate with her colleagues will inter-

disciplinary integration and application of skills be incorporated. What specific literacy skills are implemented into successful projects? The nine information literacy standards for student learning are listed in Figure 5.1.

Information Literacy

Standard 1 – The student who is information literate accesses information efficiently and effectively.

Standard 2 – The student who is information literate evaluates information critically and competently.

Standard 3 – The student who is information literate uses information accurately and creatively.

Independent Learning

Standard 4 – The student who is an independent learner is information literate and pursues information related to personal interests.

Standard 5 – The student who is an independent learner is information literate and appreciates literature and other creative expressions of information.

Standard 6 – The student who is an independent learner is information literate and strives for excellence in information seeking and knowledge generation.

Social Responsibility

Standard 7 – The student who contributes positively to the learning community and to society is information literate and recognizes the importance of information in a democratic society.

Standard 8 - The student who contributes positively to the learning community and to society is information literate and practices ethical behavior in regard to information and information technology.

Standard 9 - The student who contributes positively to the learning community and to society is information literate and participates effectively in groups to pursue and generate information.

Figure 5.1 - The Nine Information Literacy Standards for Student Learning

All of these standards must be implemented by teachers and achieved by students before they graduate. The achievement of these standards as a whole should be an exit level objective for all graduating seniors. *Information Power* (1998) provides scenarios and “standards in action” that provide appropriate activities for specific grade levels. Integration of information literacy skills can and should begin in some fashion, as early as kindergarten.

How do school librarians communicate with teachers in order to achieve collaboration? Both of the school media specialists who participated in the field research communicate both formally and informally with their colleagues in order to achieve collaboration. Hallway chats and lunchtime sharing were just two ways that these media specialists communicate informally. Another way to communicate informally with colleagues is to make them aware of new materials that pertain to the units of study that they teach. Both of the school media specialists who participated in the field research utilize memos and department meetings to communicate formally. One media specialist communicates formally by publishing a monthly newsletter that is distributed to all faculty members and administrators in the building.

What evaluation instruments are used to determine success or failure? In the schools observed, a scoring rubric devised by the media specialist and the teacher ensures straightforward assessment and objectivity. Both of the school media specialists who participated in the field research used scoring rubrics as evaluation instruments when grading the student-created projects, graded by both the media specialist and the content area teacher. If the majority of the students are successful in meeting the goals and objectives of the project, then it is safe to assume that the project is indeed a success.

Teaching, coaching, and mentoring the students during the course of the project will help to guarantee a positive educational experience.

A Model for Successful Cross-curricular Information Literacy Skills Projects

Grounded theory begins with observations and then proposes patterns, themes or common categories. This does not mean that researchers have no preconceived ideas or expectations; in fact, what has been previously learned will shape the new search for generalities. However, the analysis is not set up to confirm or disconfirm specific hypotheses (Babbie, 1998, p. 283).

An analysis of the data points to these components of the model: communication, formulation, collaboration, instruction, evaluation, reflection, and revision. The model for cross-curricular information literacy skills implementation outlines and describe the steps the school media specialist will take to achieve successful integration of information literacy skills into the existing content area curriculum. These steps are based on the researcher's background of experience and the field research conducted. Figure 5.2 is a diagram of the steps of the model.

Step 1: Communication. Communication is the critical first step in which the participating school library media specialists approached the content area teacher. The educational media specialists engaged teachers in a conversation about how they could integrate information literacy within the existing content area curriculum. Both media specialists used formal and informal means of communicating with faculty members. This communication took place formally at a department meeting or informally over lunch in the faculty room. During the course of a school day, there are many opportunities for communication. It need not only be oral communication. Written communications in the form of announcements or newsletters are also effective.

Step 2: Formulation. Formulation is the second step. After specific information

was given to the respective library media specialists by the content area teacher, she then formulated an idea for integration of information literacy skills into a unit of study. This step is vitally important for the teacher who has not integrated information literacy skills into the content area before. A clear formulation of an idea for a lesson did much to encourage the teacher. In both cases, the media specialists observed were able to clearly communicate an integrated instructional plan which combined the information literacy skills and the content area.

Step 3: Collaboration. Collaboration is the third step and the beginning of the collaborative process for the teacher and the school media specialist. These two educators determined specific course content utilized to integrate selected information literacy skills, what behavioral objectives were set, what presentation methods and student activities were incorporated and how the students were evaluated. This step also outlines the responsibilities that each professional assumed. All of the media specialists and teachers observed demonstrated collaborative planning and teaching during the period of observation.

Step 4: Instruction. Instruction is the fourth step. It is imperative that a well-prepared lesson is presented to the students if success is to be guaranteed. For both media specialists that were observed, technology was a critical component of the presentation of the lesson. Both media specialists used computers for demonstration purposes and then involved the students in active learning. Most students enjoy the hands-on approach to which information literacy skills easily lend themselves. TV-ator equipment was used by one media specialist during the observation. Both media

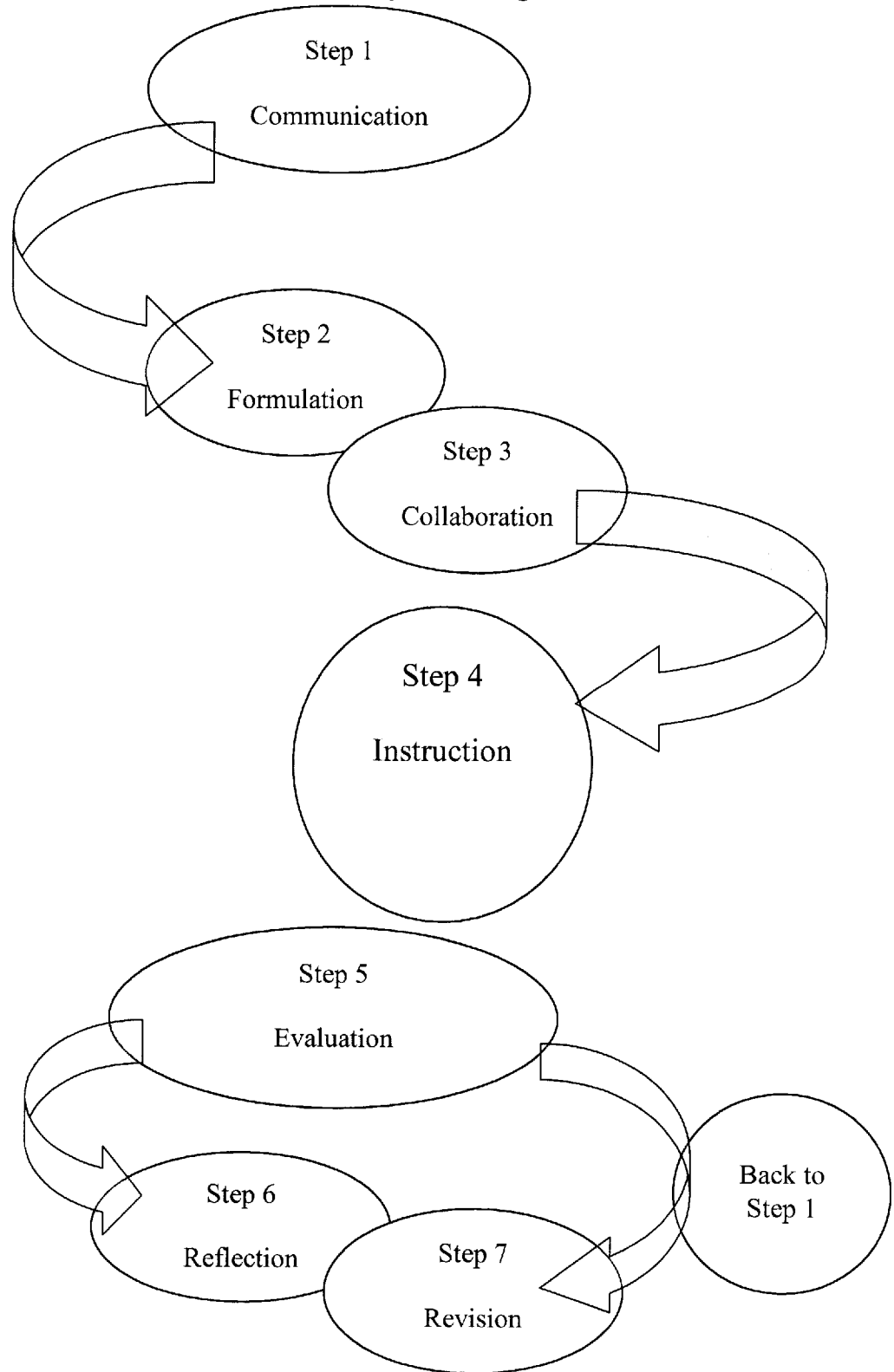
specialists stated that they also frequently use presentation software such as Microsoft Power Point but they were not observed doing so.

Step 5: Evaluation. Evaluation is the fifth step. Evaluation of the lesson included assessment from the perspective of those involved directly in the process--school library media specialist, teacher, and students.

Step 6 and Step 7: Reflection and Revision. Reflection and Revision are the two final steps of the model. The educators reflected on the project and revised where joint reflection dictated. Communication is the vehicle at these final stages and the process begins again.

The diagram shows the connection between and among the steps of the model. Step 1, communication, is at the top of the model where the process begins. Steps 2 and 3, formulation and collaboration, are closely related and occur almost simultaneously. Teacher and media specialist are collaborating as they formulate their ideas and formalize these ideas into lesson plans. Step 4, instruction, is at the center of the model and is in the largest circle indicating its primary importance. This step is also a collaborative effort as media specialist and teacher work together in instructing the students. The teacher is the expert in the content area subject matter and the media specialist is the expert in the information literacy subject matter. Step 5, evaluation, occurs after instruction and is independent. Evaluation should be appropriate to the student-created product. Rubric scoring, portfolio assessment, or performance evaluation are all possibilities. Steps 6 and 7, reflection and revision, are inter-related and occur simultaneously. After the reflection and revision, the process begins again when the media specialist and the teacher begin a new phase of communication. Figure 5.2 is a diagram of the steps of the model.

Figure 5.2 A Model for information literacy skills integration



Recommendations for replication

Field research that was conducted could be easily replicated in a variety of secondary school environments if the media specialist is willing to be the catalyst for integration. Media specialists can work with available resources and personnel to accomplish the goals they have integrated into the information literacy skills curriculum. The model for successful integration outlines steps to follow for initiating and implementing the process.

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Appendix



Educational Media Association of New Jersey

Library Media Program

Catalyst for Efficient Implementation of

Core Curriculum Content Standards, K - 12

Introduction

Philosophy

Mission Statement

Research and References

Standards and Goals

Matrix

Assessment

Sample Lesson Goals and Objectives

Introduction

Model schools of the 21st century offer students the opportunity to use "the best ideas of the past, the living concepts of the present, and the dynamic speculative visions of the future."¹ School library media centers by definition are the embodiment of that very concept.

As the teacher's role has been shifting from presenter of facts to facilitator of active learning, the range of resources required beyond the textbook has been increasing dramatically. Professionally managed school library media centers provide an organized, cost-effective system of information, databases and literary resources with equitable access at the student's point of need.

The instructional goals of the library media program specifically address information literacy:

1. The student will be able to locate, select, and retrieve a variety of books for reading.
2. The student will be able to develop strategies for effective information retrieval and management.
3. The student will be able to locate, select, and retrieve information.

4. The student will be able to understand, analyze, evaluate, synthesize, and apply appropriate information effectively.
5. The student will be able to access technological resources independently.

In addition, the library media center program provides students and staff with a wide variety of literature experiences. This document was prepared by school library media specialists throughout the state of New Jersey under the leadership of the Educational Media Association of New Jersey (EMAnj). Throughout this document, selected research findings with the indicated references will be interspersed.

Philosophy

School library media centers embody the school's philosophy of implementing, developing, learning, enhancing, and promoting critical thinking skills, lifetime learning, and the basics of information literacy, writing, and computation in all formats, including print, multimedia, and technological resources.

An effective library information skills program is an integral part of the total educational program, teaching students the basic processing skills necessary to connect them with information and ideas in all subject and interest areas. Development of these skills involves the collaborative efforts of certified library media specialists, administrators, classroom teachers, technology coordinators, computer teachers, parents, and students as active partners in the educational process, thus reinforcing the value of literacy and life-long learning.

"At the very highest level, there is more than an integral curriculum; the overall school curriculum is actually information based and the LMC [Library Media Center] becomes as common a setting for content learning as the classroom." 2

Mission Statement

America 2000: An Educational Strategy, released by President Bush in April, 1991, is a long-range plan to move toward national educational goals adopted by the president and governors at the Charlottesville Educational Summit in 1990. America 2000 includes the development of "New American Schools" specifying that each "New American School shall be networked to share information, resources, and ideas using technologically advanced library media centers as its information technology hub." 3 President Clinton, in his turn, has provided monies for technology in education and in the library media centers. 4

The mission of the library media program is to ensure that students and staff are effective users of resources, ideas, and information and to promote in our youth the powers of literacy and competencies to function effectively in the workplace of the 21st century. This mission recognizes the essential role of the school library media program in the educational process as a catalyst for all academic instruction and a dynamic force for excellence in education.

In support of this mission, the library media program will provide

- * intellectual and physical access to a "super catalog" of a well rounded multi media collection. 5

* standards of instruction and design assessments to foster competence, aesthetic appreciation and a lifelong interest in reading, viewing, listening, and effectively using ideas and information.

* opportunities for an active partnership with parents, teachers, computer experts, and administrators infusing common instructional goals and fully integrating the library media program into the curriculum.

* a dialog and partnership among the library media specialists, administrators, teachers, parents, and the business community with a commitment to providing universal and unrestricted access to a plethora of information and ideas.⁶

These provisions are documented in the latest embodiment of national standards, *Information Power: Guidelines for the School Library Media Programs* (1988), which reviews in depth all aspects of the library media program. The document is undergoing a revision now and the draft copy is available for inspection at the AASL web site, <<http://www.ala.org/aasl/infopwrmenu.html>>.⁷

Research and References

A. Research Finding:

Information literacy is defined as the ability to use information purposefully and effectively. Integrated information skills instruction has a significant positive impact on students' ability to use a range of information skills to solve particular information problems. "...the closest correlation to high scores on college entrance exams is not per-pupil expenditures for instruction, teacher's salaries or textbooks. Instead, by a wide margin, it is the number of local tax dollars spent per pupil on library/media center." Kirk and Kulthau studies also point to the value of both a process approach and an integrated approach to information skills instruction.

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B. Research Finding:

"Since classrooms cannot serve as the repositories of all the information students will need to successfully complete their assignments, a natural instructional partnership between school library media specialist and faculty is likely to develop."

B. Reference:

Craver, Kathleen W. *School Library Media Centers in the 21st Century Changes and Challenges*. Westport, CT: 1994. page 122.



Educational Media Association of New Jersey

Standard 1 | [Standard 2](#) | [Standard 3](#) | [Standard 4](#) | [Standard 5](#) | [Standard 6](#) | [Standard 7](#) | [Standard 8](#) | [Standard 9](#)

**Information Literacy Standards for Student Learning
and the
New Jersey Core Curriculum Content Standards
April 1999**


Standard 1: Accesses information efficiently and effectively

Cross-Content Workplace Readiness	2.1	Understand how technological systems function.
	2.2	Select appropriate tools and technology for specific activities
	2.3	Demonstrate skills needed to effectively access and use technology-based materials through keyboarding, troubleshooting, and retrieving and managing information
	2.4	Develop, search, and manipulate databases.
	2.5	Access technology-based communication and information systems.
	2.6	Access and assess information on specific topics using both technological (e.g., computer, telephone, satellite) and print resources available in libraries or media centers
	2.7	Use technology and other tools to solve problems, collect data, and make decision.
	3.4	Identify and access resources, sources of information, and services in the school and the community.
	3.5	Use the library media center as a critical resource for inquiry and assessment of print and nonprint materials.
	3.7	Conduct systemic observations.
Visual and Performing	4.9	Use time efficiently and effectively.
	5.4	Demonstrate safe use of tools and equipment.
	1.3.3	Demonstrate an understanding of technology, methods, materials, and creative processes commonly used in dance, music, theater, or visual

Arts	15.1	arts.
	1.5.5	Investigate, experience and participate in dance, music, theater, and visual arts activities representing various historical periods and world cultures.
	1.5.6	Identify significant artists and artistic works in dance, music, theater, and visual arts representing various historical periods, world cultures, and social and political influences.
		Understand and demonstrate a knowledge of how various artists and cultural resources preserve our cultural heritage and influence contemporary arts.
Comprehensive Health and Physical Education	2.2.1	Describe and demonstrate a variety of ways to access and convey health information and ideas.
	2.2.6	Describe and demonstrate ways to access and present health information and ideas, and analyze the information for accuracy and reliability.
	2.2.12	Synthesize, interpret, and express information about health issues using valid resources, and adapt the information for different audiences.
	2.3.10	
	2.4.21	Identify and explain how to access resources for information, support, and treatment of problems related to the use and abuse of chemical substances
		Identify resources that provide information, assistance, and care in addressing sexual and reproductive health and legal issues.
Language Arts Literacy	3.2.3	Listen for a variety of purposes, such as enjoyment and obtaining information.
	3.2.5	Listen attentively and critically to a variety of speakers.
	3.4.8	Read with comprehension.
	3.4.16	Read and use printed materials and technical manuals from other disciplines, such as science, social studies, mathematics, and applied technology.
	3.4.25	
	3.5.2	Gather and synthesize data for research from a variety of sources, including print materials, technological resources, observation, interviews, and audiovisual media.
	3.5.3	Demonstrate the ability to gain information from a variety of media.
	3.5.6	Articulate awareness of different media forms and how they contribute to communications.
	3.5.10	Recognize and use pictorial information that supplements text.

		Take notes on visual information from films, presentations, observations, and other visual media, and report that information through speaking, writing, or their own visual representations.
Mathematics	4.1.8	Determine, collect, organize, and analyze data needed to solve problems.
	4.2.9	Formulate questions, conjectures, and generalizations about data, information, and problem situations.
	4.3.7	Recognize the role of mathematics in their daily lives and in society.
	4.3.12	Recognize how mathematics responds to the changing needs of society through the study of the history of mathematics.
	4.5.1	Select and use calculators, software, manipulatives, and other tools based on their utility and limitations and on the problem situation.
	4.5.5	Use technology to gather, analyze, and display mathematical data and information
	4.7.10	Investigate the occurrence of geometry in nature, art, and other areas.
	4.12.5	Construct, read, and interpret displays of data such as pictographs, bar graphs, circle graphs, tables, and lists.
	4.14.3	Identify and investigate sequences and patterns found in nature, art, and music.
	4.14.9	Explore methods for storing, processing, and communicating information.
Science	5.2.1	State a problem about the natural world in the form of a question.
	5.2.2	Develop strategies and skills in information-gathering and problem-solving, using appropriate tools and technologies.
	5.2.8	Collect and organize data to support the results of an experiment.
	5.3.1	Hear, read, write, and talk about scientists and inventors in historical context.
	5.3.3	Recognize that scientific theories emerge over time, depend on the contributions of many people, and reflect the social and political climate of their time.
	5.3.7	Examine the lives and contributions of important scientists and engineers who effected major breakthroughs in our understanding of the natural world.
	5.4.4	Find and report on examples of how technology helps people.
	5.4.10	Recognize that technological problems often create a demand for new

	5.10.	scientific knowledge, and cite present and past examples of the interrelationship and mutual influence of science, technology, and society.
	15.10.3	Recognize and demonstrate the use of different kinds of maps.
	5.10.9	Identify major sources and uses of water, discussing the forms in which it appears.
	5.11.6	Monitor local weather conditions and changes in the atmosphere that lead to weather systems.
	5.12	Describe the technologies used to explore the universe.
		(All indicators require researching the protection and preservation of natural resources.)
Social Studies	6.1.3	Assess information about a public issue.
	6.1.7	Locate, access, analyze, organize, and apply information about public issues, recognizing and explaining multiple points of view.
	6.1.12	Locate, access, analyze, organize, and apply information about public issues in order to evaluate the validity of different points of views.
	6.2.2	Identify social history represented in works of literature and the fine arts.
	6.2.8	Identify the mutual impact of technology and aesthetic expression.
	6.7.9	Solve location problems by using information from multiple sources.
	6.7.10	Compare information presented at different scales.
	6.8.5	Compare the physical characteristics of places and regions.
World Languages	7.1.5	Provide and obtain information on familiar topics.
	7.1.22	Research language-related employment opportunities.
	7.2.4	Recognize and explore the process of stereotyping.
	7.2.10	Explore and discuss similarities and differences among various cultures.

 About EMANJ	 Awards	 Conferences	 Library Links
 Professional Development	 Publications	 School Library Media Program	 Main Menu

PRE-OBSERVATION INTERVIEW with School Library Media Specialist

The answers to these questions are intended to give a detailed general background on the curricular aspects of the school library program under observation.

1. Description of physical resources.
2. The budget for total expenditures is...
3. The size of the library media
staff...professionals....clerical....volunteers.....student workers.....
4. Describe your professional preparation.
5. Describe your professional experience.
6. What professional organizations do you belong to?
7. What professional conferences do you attend?
8. What is your title and its concomitant responsibilities?
9. Are you familiar with the Information Literacy Standards published by the AASL
in *Information Power: Building Partnerships for Learning*?
10. Is there are a curriculum and/or scope and sequence chart available for
information literacy skills/library media skills?
11. When was it last revised?
12. How many classes do you see in a week? A month?
13. With which content areas do you work most often?
14. Describe your role in the curriculum process.
15. Describe your teaching responsibilities.

16. Describe the steps you take to work collaboratively with teachers both formal and informal.
17. Describe your most successful collaborative project.
18. Why was it successful?
19. Describe your least successful collaborative project.
20. Why was it not successful? Could you change certain aspects of it to make it more successful?
21. Are there certain elements of an integrated curricular project that guarantee success?
22. Is there a specific research skills matrix that you incorporate, for instance *Eisenberg & Johnson's Big 6*?
23. What skills do you teach at given grade levels?
24. How do you incorporate technology into your lessons?
25. Are you involved in the evaluation process?

POST-OBSERVATION INTERVIEW

The answers to these questions are intended to give detailed specific information on the lesson being observed. These questions will be formulated during the process of the observation.

OBSERVATION NOTES

School

Location of class

Librarian

Teacher

Content Area

Grade level

of students

Lesson

Objective

“Sketchy” Notes made during actual observation

1. _____
2. _____
3. _____
4. _____
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35. _____

Biology Library Project: Endangered Species

Due Date: Friday, April 7, 2000

Requirements:

- * 1 to 1 1/2 pages in length
- * must include information found on this form
- * due by *above date* ... This is a major test grade, if not submitted by due date, a "0" will be issued
- * must submit original cover with project
 - suggestions for cover:
 - collage of endangered species
 - original drawing
- * Questions to be answered, (you must include the following, but feel free to add more)
 1. Describe your species:
 - a) scientific name, and its' group
 - b) common name
 - c) size
 - d) coloring
 - e) where it lives
 - f) what it needs to survive
 2. How many of the species still remain?
 3. What are its' chances for survival?
 4. What is the main reason this species is endangered?
 - a) used for food
 - b) used for clothing
 - c) luxury
 5. What are some of the groups that protect your species?
 6. What could you do to help this species survive?
 7. Use at least three different types of references, i.e. one magazine, one encyclopedia, one science book. All references must be dated from 1990- to present.
You may not copy information directly from any book, or article, **you WILL receive a failing grade!** You must list your references, see attached form, as well as document any sources.

ECOLOGY AND BIOME UNIT

The purpose of this project is to integrate biomes, communities, and ecology. The final assessment will be a poster of the biome and a BRIEF presentation of same.

Each group will be assigned a biome. The poster display of this biome will include the following:

- Written description of the biome
- State an actual location
- Abiotic factors- climatogram
- Dominant Plants and Animals
- Food Web
- Energy Pyramid
- Soil Profile*
- Symbiotic relationships and competition (2 each)
 - mutualism
 - commensalism
 - parasitism
 - interspecific competition
- Human Impact

ENDANGERED SPECIES LIST

MAMMALS:

AARDVARK
ANTEATER
ANTELOPE
ARMADILLO
BADGER
BAT
BEAR
BISON
BOBCAT
BUFFALO
CAMEL
CARIBOU
CHEETAH
CHIMPANZEE
COUGAR
DOLPHIN
ELEPHANT
FERRET
GIBBON
GOPHER
HIPPOPOTAMUS
HYENA
IMPALA
KANGAROO
LEMUR
LYNX
MANATEE
MINK
SPIDER MONKEY
ORANGUTAN
OTTER

PANDA
PANTHER
PORCUPINE
PORPOISE
RHINOCEROS
SEAL
BIGHORN SHEEP
SLOTH
TAMARIND
TAPIR
TARSIER
TIGER
WALLABY
WHALE
WOLF
ZEBRA

AMPHIBIANS AND REPTILES:

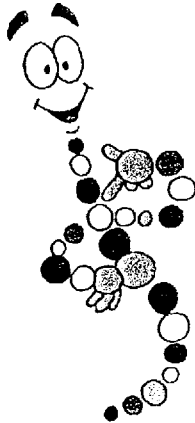
ALLIGATOR
BOA
COBRA
CROCODILE
IGUANA
MUDPUPPY
NEWT
RATTLESNAKE
GARTER SNAKE
PAINTED TERRAPIN
GALAPAGOS TORTOISE
SEA TURTLE
TREEFROG

BIRDS:

BLUEBIRD
BOBWHITE
CRANE
~~**BALD EAGLE**~~
CUCKOO
EGRET
~~_____~~
FLAMINGO
COOPER'S HAWK
HERON
HUMMINGBIRD
IBIS
MACAW
OSPREY
OSTRICH
OWL
PARROT
PELICAN
PENGUIN
PIPING PLOVER
STORK
WOODPECKER

Research Information for Mrs. Mroz's **Genetics Projects**

(Information for disease reports and genetics topics)



Books:

Try the online card catalogs, which are now on every computer (*Library Catalog icon*). Type in your topic, then click on "keyword".

Online Magazine Resources:

EBSCOhost and *Infotrac*, *SIRS Discoverer* and *SIRS Researcher* are all sources which may contain full-text articles relevant to your topic. (Note: the password for *EBSCOhost* and *Infotrac* is *sjrlc098*). All of these databases are available on our Media Center homepage (<http://lcmr.capemayschools.com/media.htm>). You can access *EBSCOhost* and *Infotrac* from your home computer through our web page!

Cape May County Library and S.J. Regional Library Cooperative:

Links to the Cape May County Library online catalog and the South Jersey Regional Library Cooperative (for interlibrary loan of books) are also available through our web page.

Internet Search Engines:

Mining Company (About.com) (www.miningco.com) is a great search engine to use to find good, quality sites about genetics.

AltaVista (www.av.com) is also a link off our homepage. Search for your topic by typing in the disease plus the term "genetics." Add +signs in front of each term.

For example: *+diabetes +genetics*

If your disease has two words in the name, put it in quotation marks:

For example: *+"Tourette's Syndrome" +genetics*

Two other useful meta search engines are *Metacrawler* and *Dogpile*, also linked off our homepage. It is always best to try several search engines for information!

