

NEASC White Paper

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Introduction

Standards for Accreditation, published by the New England Association of Schools and Colleges, Inc. (2000), set the standards used to evaluate a school's program with reference to the school's mission statement and expectations for student learning. This paper rests on the premise that that information skills are essential skills of a 21st century education. School library media centers provide library/information programs that deliver these skills through curriculum and instruction.

An exemplary library media program is built on the foundation of an information infrastructure that includes materials, equipment and facilities, and direct services to students and teachers. The mission of the program can be described as four areas: collaboration, reading, enhancing learning through technology, and information literacy (Loertscher, 2000). What distinguishes a school library is its focus on an instructional program that is integrated into the curriculum of a school. While such a program must meet standards that address its infrastructure and services because these are the tools the program uses to achieve its end. The bottom line, however, is the effect the school library program has on student learning. This is the value it adds to the academic life of a school, and the program must go beyond the reach of a support service to achieve this value.

This paper raises the question, "What is the place of school library media programs in the life of a school, and consequently, in the accreditation process?" Section One, The Historical Imperative for Proactive School Libraries, traces the emergence of the school library media center as a learning laboratory and the school librarian as teacher. School library standards and other initiatives that underscore the academic significance of library and information services in schools are described. Section Two, Library Instruction in the 21st Century explores the classroom-library-computer lab connection as it describes the new paradigms for teaching information skills in a high tech environment. This section reviews the educational research that supports the pedagogy of independent and life-long learning. Section Three, What the Research Says: School Library Programs and Student Achievement, presents research findings of studies that correlate school libraries and the role of the school librarian with reading, test scores and student achievement, culminating in the school library impact studies of the last decade.

Section One: The Historical Imperative for Proactive School Libraries

An historical review chronicles the school library's transformation from a room in the "little red schoolhouse" to a dynamic, multi-formatted, technology-driven program that is woven into the academic fabric of school life. There was a time when the school library evoked an image of a converted classroom filled with books, heavy oak tables and large signs mandating "SILENCE." Modeled on the form and function of public libraries, the school library provided recreational and supplemental reading, with the added feature that its collection supported the school's curriculum. Today the school library media center continues to provide a curriculum-relevant collection but the scene has changed to a high-tech age of information delivery with complex retrieval systems that mandate a paradigm shift. In addition to being an information broker, the school librarian designs and manages user-centered information services and instructional strategies that are integral to classroom teaching and best practice.

The emergence of the school library concept. The concept of a library aligned with the academic mission of public schools is a uniquely American phenomenon. It grew from the conviction that an information-rich learning environment is necessary for academic rigor and good teaching. As early as 1839 it was recognized by Horace Mann that school libraries could compensate for the limitations of the textbook (Davies, 1979)

and promote informed citizenry ready and able to wisely govern themselves. The Madison Conference in 1892 noted in its report that parallel reading as well as recitation comprised good teaching. The National Education Association (NEA) endorsed the concept of the secondary school library as the heart of the school in 1918 with the adoption of a report of the Committee on Library Organization and Equipment, *Standard Library Organization and Equipment for Secondary Schools of Different Sizes*. At the NEA Convention in 1919, Bessie Smith made the connection between the inadequacies of the textbook and the need to establish school libraries. These standards were adopted by the American Library Association (ALA) in 1920, providing comprehensive standards for the high school library and for the professional qualifications and status of the school librarian as teacher (Davies, 1979).

The emergence of school librarian as teacher. The teaching role of the school library and its place in the academic life of the school became increasingly prominent as ALA continued to publish its standards for school libraries during the years of 1925, 1945, 1960, 1969, 1975, 1988 and 1998. The Joint Committee of the American Association of School Libraries (AASL) and the Department of Audiovisual Instruction of the National Education Association published *Standards for School Media Programs* in 1969. These standards endorsed the philosophy that school library media centers play a vital instructional role and resolved the conflict between book-oriented librarians and technology advocates who were introducing audiovisual programs in schools. The concept of the unified media center was born with the centralization of print and audio-visual formats and the coordination of services. The unified concept addressed the role of the library media center as an instructional support component of the school's curricula (AASL, & NEA, 1969) and the library media specialist assumed the function of curriculum consultant as well as resource specialist.

School library standards. AASL and the Association for Educational Communications and Technology (AECT) published revised standards called *Media Programs: District and School* in 1975. These standards called for programs that improved the educational experience of all learners by building "bridges between content, purpose and procedure, self and society" (AASL & AECT, 1975, p. 4). An interpretation of the role of the school library was one of the major innovations of these standards, delineating guidelines and recommendations for media programs and resources essential for quality education. "Media programs which reflect applications of educational technology, communication theory, and library and information science contribute at every level, offering essential processes, functions, and resources to accomplish the purposes of the school." (AASL & AECT, 1975, p. 1)

Information Power: Guidelines for School Library Media Programs (AASL & AECT, 1988) provided standards for school library media programs that factored in the educational issues of the day. It defined challenges that included: providing access to information for diverse populations, ensuring equity and freedom of access to information; promoting literacy; providing leadership in information use and instructional technologies; participating in networks that enhance access to resources outside the school. The document defines the role of the library media specialist as information specialist, teacher and instructional consultant. It urged library media specialists

...to ensure that students and staff are effective library users of ideas and information...to provide intellectual access to information through systematic learning activities which develop cognitive strategies for selecting, retrieving, analyzing, evaluating, synthesizing and creating information at all age levels and in all curriculum content areas. (AASL, & AECT, 1988, p. 1)

This document paved the way for the information literacy initiative as library media specialists began to recognize the need to integrate cognitive skills, such as analyzing, synthesizing, and organizing, into a

process approach to research that taught the use of information in the context of a real research assignment. The concept of information literacy emerged as central to mission of the school library media program with the publication of national standards in *Information Power: Building Partnerships for Learning* (AASL & AECT, 1998).

Information literacy-the ability to find and use information-is the keystone to lifelong learning. Creating a foundation for lifelong learning is at the heart of the school library media program. Just as the school library media center has moved far beyond a room with books to become an active, technology-rich learning environment with an array of information resources, the school library media specialist today focuses on the process of learning rather than the dissemination of information. (AASL & AECT, 1998, p. 1)

The document defined nine information literacy standards designed to guide and support library media specialists' efforts in three major areas: learning and teaching; information access; program administration. (AASL & AECT, 1998, p. ix). This document advocated the assessment of information skills in the context of academic learning, using authentic assessment tools, i.e., rubrics, journals, portfolios, to complete the integration of these skills into the mainstream of teaching and learning. In addition, ten teaching and learning principles were identified and developed by the Information Power Vision Committee and approved by the AASL and AECT Boards as the cardinal premises on which learning and teaching within the effective school library media program are based. Three of these principles stated:

- The library media program is essential to learning and teaching and must be fully integrated into the curriculum to promote students' achievement of learning goals;
- The information literacy standards for student learning are integral to the content and objectives of the school's curriculum;
- Access to the full range of information resources and services through the library media program is fundamental to learning. (AASL & AECT Boards, 1998, p. 58)

Other initiatives. In addition to these seminal documents, other significant initiatives are marking the place of school libraries in the center, rather than in the margins, of learning.

- The Knapp School Libraries Project developed in the 1960s supported the development of model libraries in schools by upgrading materials and qualified personnel (Knapp, 1966). The project helped many teachers and school librarians to design scope and sequence charts and curricula, placing research and study skills in subject contexts for teachers to incorporate in their everyday teaching (Irving, 1983). These scope and sequence charts emphasized a source approach (Eisenberg & Brown, 1992) by clearly identifying reference tools and skills to be taught by grade irrespective of content area curriculum needs but have nevertheless laid the foundation for identifying skills, and eventually standards, for information literacy.
- Further impetus for reform was given by *A Nation At Risk* (1983). This publication signaled the awareness in the educational mainstream of children's needs to manage information, stating:

Learning is the indispensable instrument required for success in the "information age" we are entering. More and more young people emerge from high school ready neither for college nor for work. This predicament becomes more acute as the knowledge base continues its rapid expansion (National Commission on Excellence in Education, 1983, pp. 7, 12).

- The establishment of the ALA Presidential Committee on Information Literacy

(<http://www.infolit.org/documents/progress.html>) precipitated the formation of the National Forum on Information Literacy in 1990. A coalition of over 75 education, business, and governmental organizations, it was formed to promote awareness of the need for information literacy and encourage activities leading to its attainment.

- In 1995 AASL developed ICONnect (<http://www.ala.org/ICONN/>), a national technology initiative intended to connect teachers and students to learning using Internet technology and to assume a leadership position into integrating Internet resources into the curriculum.
- With the passage of Goals 2000: Educate America Act in 1994, subject matter organizations obtained funding to develop standards National Education Goals and national content standards. Information literacy skills are implicit in the standards: three of the eight National Education Goals demonstrate the critical nature of information literacy, (i.e., School Readiness; Student Achievement and Citizenry; Adult Literacy and Lifelong Learning.)
- In 2000 the Information Literacy Network, affiliated with the Association of Supervision and Curriculum Development, was formed to support administrators in strengthening their library programs and information literacy strategies.

Historical evidence, spanning more than a century, documents the evolution of the school library media concept from provider of support materials and services to participant and leader in the educational process. Educators and policy makers continue to recognize the power of the school library as integral to teaching and learning.

Section Two: Library Instruction for the 21st Century

In the last decade of the 20th century a literature review revealed a shift in the library instruction paradigm that called for implementing new instructional methods for teaching information skills (Eisenberg & Brown, 1992). The consensus revealed that:

In the past, direct involvement of the library in the instructional process was the exception, not the rule. So long as teaching and learning were restricted to the "two-by-four" concept of education (the information contained between the two covers of the textbook and the four walls of the classroom), the school library was required to serve in no other way than as a study hall-book dispersal center. It is only when the instructional program evolves from traditional mediocrity to innovative excellence that the function of the library must change to that of a learning laboratory; from a collection limited to printed materials to a collection embracing all types and kinds of appropriate media carriers essential for a bonus-rich instructional environment; from the sporadic use of media to the planned and purposeful integration of library resources and services with the ongoing teaching and learning enterprise. Direct involvement in the instructional process requires that the school library media specialist become directly involved in the total teaching and learning enterprise. (Davies, 1979, p. 32)

The learning task. What does involvement of the school library in the instructional process look like?

This learning task required students to:

- Search for information, framing questions and making decisions based on what was found at each stage of the search.
- Sift through technical words and terms that defied literal translation and wade through inferences and theories that presumed the reader had deep knowledge and wide background on the subject.
- Comprehend and interpret charts, diagrams and graphs filled with data and recognize pertinent information
- Abstract, paraphrase and summarize, knowing what to leave out as well as what to write down.
- Categorize and label the evidence as it was being collected, a prerequisite to an inductive reasoning process whereby they would come to a logical, general conclusion from specific pieces of evidence.
- Understand economic, as well as political and geographic concepts, and how they relate to economic development.
- See relationships and connections among these concepts as manifested in the vocabulary and language of all the disciplines represented in this task.
- Discern methods of organization of the data, seeing cause and effect, comparison and contrast, and a hierarchical order among the hundreds of pieces of evidence they uncovered.

In effect, students were expected to support a hypothesis and present evidence in a persuasive and logical manner that was articulate and grammatically correct. This assumed that students understood the structure of the disciplines of geography, economics and politics, and the methods of inquiry that grew from those underlying principles. "In learning methods of inquiry the student is stimulated to active engagement with the subject...methods are ways of *doing* something - modes of active investigation." (Phenix, 1964, p. 337) These conceptual demands were complicated by the complex undertaking of information searching such as inconsistencies between print and electronic indexes and among the automated databases themselves, compounded the difficulties of novices struggling to ask for information about what they do not know (Belkin, 1980).

This project not only extended the classroom unit; it challenged students to become independent learners who could interpret and apply new information to what was learned in the classroom. It required them to use higher order thinking skills such as analysis, synthesis and evaluation. The attainment of these cognitive goals was contingent upon prior learning, defined as cognitive entry behaviors that constitute a vital link between the learner and the accomplishment of the learning task (Bloom, 1956). What takes place in the classroom establishes cognitive entry behaviors, but it is only the beginning of teaching for understanding. When teachers and librarians work together, the methodology shifts from subject to student-centered, with an

emphasis on the information skills needed for lifelong, independent learning.

Information Skills Instruction. Illustrated in Table 1 (Kuhlthau, 1986), this model accelerated the paradigm shift from library instruction to information literacy and has become its cornerstone. The model describes thoughts, feeling and actions as information seekers advance from seeking relevant information to seeking pertinent information. Increased confidence correlates with more focused papers and higher grades (Kuhlthau, 1989). When applied to high, middle and low-achieving high school seniors, the stages seemed to indicate that information seeking was a complex learning process which involved finding meaning (Kuhlthau, 1989). Aggregate scores from the three groups verified that thoughts move from general to specific to focused during the search process. Thought processes progressed from ambiguity to specificity, and interest increased after the focus had been formed.

Table 1: Information Search Process

Stages	Task	Topic	Prefocus	Focus	Informa- tion Col- lection	Search Closure	Starting Writing
	Initia- tion	Selec- tion	Explor- ation	Formu- lation			
Feelings	uncer- tainty	optim- ism	confusion frustration doubt	clarity	sense of direction/ confidence	relief	satisfac- tion/dis- satis- faction
Thoughts			ambiguity----->specificity increased interest----->				
Actions	seeking relevant information----->seeking pertinent information						

A process approach to library instruction itself attempts to bring the classroom teacher's goals for instruction closer to those of the librarian as library instruction is fully integrated into classroom learning (Kuhlthau, 1987a). Research topics are culled from subject area curriculum and articulated as assignments, serving as content for what is to be taught by the teacher, while information skills that are critical to the execution of the assignment are selected by the librarian as objectives for library instruction. The process approach places the emphasis "on developing transferable cognitive skills that should increase students' effective use of information in general as well as their use of specific libraries and resources" (Eisenberg & Brown, 1992, p. 103). Examples include:

- Kuhlthau's (1985) process model for library research;
- the "Big Six Skills" information problem-solving framework of Eisenberg and Berkowitz (1990);
- Irving's (1985) use of information and study skills to deal with assignments and other student information needs;
- the description by Stripling and Pitts (1988) of library research as a thinking process with ten steps.

These models have served as process frameworks in real settings.

Kuhlthau's model has helped educators to design resource-based learning tasks and appropriate support materials that guide students toward independent learning and successful information management. As education changed from textbook teaching to the data-rich environment of the information age offered by resource-based teaching, the concept of the media center as an extension of the classroom grew (Kuhlthau, 1989).

Educational research and constructivist methods. "The recent literature of school librarianship has taken its lead from the research basis that informs the educational community. Practitioners help students to

consciously use and refine information and critical thinking skills in an analytic framework that mirrors...cognitive processes and structures..." (Kulleseid, 1986). A theoretical base for a process approach to library and information services was identified by Kuhlthau (1996), who used theory borrowed from the fields of education and psychology. Cognitive learning theories suggested that learning was an act of construction, similar to reading and writing and that instruction should reflect that cognitive viewpoint (Davis, 1992). The concepts of information literacy and the process approach rest on a firm foundation of educational research which set a theoretical framework which validates the pedagogy of active and independent learning as it manifests itself in the partnership between classroom teaching and school library media programs.

The theory of meaningful learning has been the theoretical basis for research in classroom instruction that attempts to understand how people learn and how they become aware of their learning (Ausubel, 1963). This theory is based on the premise that in order for meaningful learning to occur new information must be linked to pre-existing knowledge, and prior knowledge that consists of misconceptions should be addressed. Ausubel distinguished between rote-meaningful learning continuum on the one hand and a reception-discovery teaching/learning strategy continuum on the other. Rote learning is verbatim, involving externally dictated stimulus response associations, while meaningful learning is idiosyncratic, requiring the association of new learning material the learner's prior knowledge (Ausubel, Novak, & Hanesian, 1978). Ausubel (1963) also noted a distinction between receptive and discovery learning, and he noted the dominance of receptive learning in the classroom. On the other hand, the school library setting is a discovery learning situation where students interact with information on their own terms. In both the classroom and the library students struggle to relate new information to what they already know so that it can be meaningful (Ausubel, 1963).

Ausubel's (1963) theory of meaningful learning belongs to the tradition of progressive, child-centered thinkers such as (Dewey, 1956) and cognitive psychologists such as Piaget (1928). Cognitive psychology-based learning theory laid the foundation for later research in cognition (Kulleseid, 1986) which was brought to national attention by the Carnegie Foundation for the Advancement of Teaching's report which stated:

Teachers should use a variety of teaching styles - lecturing to transmit information, coaching to teach a skill, and Socratic questioning to enlarge understanding. But there should be a particular emphasis on the active participation of the student. Textbooks seldom communicate to students the richness and excitement of original works. The classroom use of primary source materials should be expanded...(Boyer, 1983).

Organizing information into a conceptual framework allows students to transfer, or apply what was learned, to new situations and to learn related information more quickly. (Donovan, M.S., Bransford, J.D. & Pellegrino, J.W., 2001). As concepts are reinforced, the learner transfers learning outside the classroom (Holyoak, 1984; Novik & Holyoak, 1991). School libraries provide opportunities outside the classroom to retrieve and apply factual knowledge, organized within its conceptual framework, to an independent learning situation.

Educational research fueled subsequent innovations in pedagogy that are closely aligned with the process approach and information literacy strategies. A concept paper provided a rationale for incorporating critical thinking skills into library instruction.

Information management skills instruction...must be broader and more process oriented. Focus must go beyond location skills and 'correct answers' and move to strategies that will help students to develop insight and facility in structuring successful approaches to solving information needs (Mancall, Aaron, & Walker, 1986, p. 23).

The problem solving approach to teaching dates back to the work of Bloom and Broder (1950). This study gave rise to categories of problem solving behavior such as understanding 1)the nature of the problem; 2)the importance of key words and phrases; 3)the need to follow directions; 4)the ideas contained in the problem; 5)the general approach to the solution of the problem; 6)the attitude toward the solution of the problem. These categories were useful in recognizing that successful problem-solvers would question their knowledge and use that information to break the problem down into more manageable components.

The movement toward inquiry learning was characterized by an approach that was question-oriented and teacher-directed, yet students were also viewed as teachers and peer interaction was vital. Inquiry was defined as, "a complex process that includes formulating a problem or question, searching through and/or collecting information to address the problem or question, making sense of that information, and developing an understanding of, point of view about, or answer to the question" (Sheingold, 1987, p. 2). Victor (1974) described ten elements of inquiry learning which applied to all academic disciplines in which students became the primary persons acting on the learning material. Callison (1986) advocated using these elements to develop critical thinking related to information use. Free inquiry learning, as it inevitably spilled out of the classroom, affected the librarian who not only took on the role of teacher, but also resisted the traditional classroom routines that prevent free inquiry from taking place.(Callison, 1986) For example, classroom learning can become bogged down with clerical routines, such as attendance and homework checks that convey a teacher-centered, rote orientation that relegates the learner to a passive role.

Research in meta-cognition also created a theoretical bond between sound pedagogy in the classroom and in the library by helping students take control of their own learning. Conflict theory (Piaget, 1928, 1932), which established that children's awareness of a problem was responsible in part for their advancing to higher levels of understanding, laid the groundwork for research in meta-cognition. While cognitive processes emerge early in development, meta-cognitive skills take longer to develop (Bondy, 1984). Vygotsky (1962) noted that knowledge is acquired prior to the conscious control of knowledge. His distinction between cognition and meta-cognition was described as a difference in self-awareness and control (Vygotsky, 1978). During the interim period between non-reflective and reflective thought these developing skills are demonstrated when a child is able to carry out a task with the assistance of an adult which the child could not have done alone. The distance between the actual developmental level, as determined by independent problem solving, and the level of potential development, as determined through problem solving under adult guidance or in collaboration with more capable peers, was called the zone of proximal development (Vygotsky, 1978). The confrontation of the child's thought with the concepts presented in the schooling process brings the child's thinking from the non-reflective level to a cognitive self-awareness (Vygotsky, 1962). Meta-cognitive research has been pivotal to the distinction between novice and expert searching behavior and in the development of heuristic devices such as concept maps used in structuring student use of information.

Flavell (1979) described meta-cognitive thought as an interaction of three types of variables: person, task and strategy. This helped to legitimize the place of independent learning in school settings. Meta-cognitive research has important implications for information skills instructional programs. An overview of meta-cognitive research as it relates to student's use of the library (Bertland, 1986) indicates that researchers believe that those who teach should act as models of meta-cognitive behavior by incorporating think-alouds, group work and hands-on experience. The findings of meta-cognitive research have significant implications for information skills instructional programs.

If such instruction is to be effective, two conditions must be met; first, the student must be developmentally ready to learn the skill; and second, the student must realize that use of the skill will be effective in solving a personal cognitive problem (Mancall, Aaron, & Walker,

1986).

A meta-analysis of educational research includes research on active learning that focuses on learning for understanding. Four key aspects of effective learning environments are that they be 1) learner-centered; 2) knowledge centered; 3) assessment centered, with an emphasis on formative assessment that provides feedback to the learner when there are opportunities for revision; 4) community centered learning. (Donovan, M. S., Bransford, J.D. & Pellegrino, J.W., 2001).

Authentic, or performance-based, assessment has evolved from meta-cognitive research and the learning-how-to-learn concept. Recent educational developments in assessment have questioned the traditional assessment techniques and established criteria and guidelines for alternatives (Wiggins, 1992). Traditional pencil and paper tests "are based on views of learning and knowing that are not best suited to the development needs of adolescents" (Dana & Tippins, 1993, p.3) while methods such as concept mapping "provide a rich view of student knowledge" (Dana & Tippins, 1993, p. 3). Other alternative assessments include performance assessments, which require students to investigate a problematic situation, simulations and role playing, all of which can rely heavily on library resources and information skills. Portfolio assessment, based on a collection of students' work that is representative of what they do well (Collins & Dana, 1993) is another assessment technique that operates optimally in a data-rich environment. Authentic assessment, or matching assessment strategies to instructional practices (Powell, 1993), includes short and long-term research projects that require information gathering.

Information Power: Building Partnerships for Learning recommends several ways that school library media specialists collaborate with teachers:

- Design and use assessment techniques to monitor students' information-seeking processes;
- Recommend and model a variety of communication products, including Web pages, interactive electronic and audio-visual presentations
- Use formative as well as summative assessments
- Use several types of assessment tools, such as checklists, rubrics, conferences, journals and portfolios (AASL & AECT, 1998).

Information literacy in the classroom. The instructional approaches described above illustrate how school curriculum now demands fast access to up-to-date information as the textbook is supplemented by other resources. The research assignment, such as the one described above, can be regarded as the invention and packaging of an information need. The concept was articulated in *Information Power: Building Partnerships for Learning* (AASL & AECT, 1998, p. 1). It defined information literacy as "...the ability to find and use information...the keystone of lifelong learning." The emergence of this concept was strengthened by the well-established process approach that bases library assignments on curricular topics. Planning, designing and teaching information literacy skills are integrated with, rather than isolated from, teaching in the content areas. Assessment of information literacy skills, viewed as process, is built into teachers' assessment of student products.

"Library media specialists...realize that a major part of their time must be spent helping students develop the thinking skills that will equip them to not only locate but also evaluate and use information effectively and thereby become information-literate" (Mancall, Aaron, & Walker, 1986, p.19). Information literacy has emerged as an overriding issue in library instruction (Irving, 1985). It is described as a need-driven goal which integrates knowledge of tools and resources with skills and exists independently, but relating to, literacy and computer literacy (Breivik, 1985). Information literacy raises levels of awareness of the knowledge explosion and how information is organized. It involves understanding how computers can help identify, access, and obtain data and documents needed for problem solving and decision making (Horton, 1983). The challenge is not only to create better technology, but also to apply that technology to encourage

better thinking and learning. In the future, students will continue to need reasoning ability while the information tools and information provide access to the paths they use are in constant change. This concern extends to college-bound students who pursue an academic career as well as to non-college students, who need the life skills of information literacy but have fewer formal opportunities to gain these skills.

Society is moving away from the assembly-line paradigm of the Industrial Age into the data rich environment of the Information Age (Kuhlthau, 1989). An increasingly important task of education is to prepare students to be independent, life-long learners who are empowered to think for themselves has become the concern of the librarian as well as the classroom teacher. Learning has evolved over the decades of the last century from being restricted to passive, content-based learning to including active and self-directed learning (Irving, 1991a). Students are encouraged to learn how to learn to gather information from a wide variety of sources, to manipulate information in a variety of formats, and to synthesize information to respond to assignments.

Finding out is only the beginning; curriculum requires that students engage in inquiry, problem-solving and self-reflection. Students are encouraged to learn how to learn to gather information from a wide variety of sources, to manipulate information in a variety of formats, and to synthesize information to respond to the assignments of their teachers. In other words, to become researchers who discover self-knowledge as well as knowledge of the world. Libraries are not necessarily the central resource, but one of several sources of information required by both teachers and learners in schools (Irving, 1991b). The school library media program, however, is the only source that provides the pedagogical expertise and resources to accomplish these goals in a seemingly endless world of information. Libraries are appropriate places for integrating skills and resources across the curriculum and for affording students opportunities to become proficient in inquiry (Kuhlthau, 1987b). When they connect to the classroom, they broaden and deepen teaching and learning.

Schools and classes are communities of students, brought together to explore the world and learn how to navigate it productively. ... the most important long-term outcome of instruction may be the students' increased capabilities to learn more easily and effectively in the future, both because of the knowledge and skill they have acquired and because they have mastered learning processes...a major role in teaching is to create powerful learners. (Joyce, Showers, & Weil, 1992, pp. 1-2)

Before students walk into the library to confront an information search for a curriculum-based research assignment, they have already begun a complex cognitive process. If we are asking students to participate in an integrated library research unit that requires the application of information skills in the content area of instruction, teachers and librarians should be using integrated methodology that does not make false or contradictory distinctions between library and classroom concerns (Gordon, 1995, p. 41).

The Challenge of Technology. Our “cyber-society, “ characterized by cyber-language, cyber-learning, cyber-activism, and cyber-patrol also brings cyber-stress, cyber-overload, and cyber-change. E-learning and e-commerce are not only alternatives; they are woven into the fabric of the classroom and the corporation. They have changed the way we do business in the school and in the marketplace. Beneath the veneer of cyber-activity is an “information explosion” that has changed the way our students are learning and our teachers are teaching. How well teachers and learners interact with the electronic environment will determine how well our children are prepared to take their place in a world that has been transformed by technology.

Papert (1979) referred to the computer as “the children’s machine” because “...children can learn to use computers in a masterful way, and ...learning to use computers can change the way they learn everything else...” (Papert, 1979, p. 8). Over twenty years later, we can observe how learners have changed. The

generation of students we teach today, dubbed “Generation Y”, are holistic learners who learn best from real world tasks and strategies. They prefer to learn using ludic, or play, behaviors, rather than rote memory and drill. Overall, testing results show a 10.02-10.75% improvement in post-test scores compared to pre-test scores on questions testing recall when ludic behaviors replace rote memorization. (Faust, J., et al., 2001).

The learning characteristics of “Generation Y” do not surprise educational researchers and practitioners who have understood that learning is a process of construction whereby children build their own intellectual structures and new knowledge is built upon prior knowledge (Dewey, 1956; Piaget, 1928; Kelly, 1963; Ausubel, 1963; Bruner, 1960; Vygotsky, 1962). Dale’s (1969) research underscores the efficacy of multi-sensory learning; his Cone of Learning illustrates that people remember 10% of what they read; 20% of what they hear; 30% of what they see; 50% of what they hear and see; 70% of what they say and write; and 90% of what they say and perform at a task. Hands-on instruction, advance and graphic organizers, concept and mind mapping, oral and written presentation, and assessment that involves peer and self-evaluation are teaching techniques that work for all children, but are especially relevant to “Generation Y” learners who are growing up in the fast-moving, visual, intuitive medium of computer technology.

The challenge in today’s classrooms goes beyond helping students be become computer literate.

Schools and classes are communities of students, brought together to explore the world and learn how to navigate it productively. ... the most important long-term outcome of instruction may be the students' increased capabilities to learn more easily and effectively in the future, both because of the knowledge and skill they have acquired and because they have mastered learning processes... a major role in teaching is to create powerful learners.
(Joyce, Showers, & Weil, 1992, pp. 1-2)

The school library media specialist has an important role to play in education as information broker who uses the power of technology to help students find their way through a complex learning environment.

While the interactive role of the librarian and teacher has been changing slowly since the advent of computer-based technology, the sophistication of the information base has accelerated the pace of constant collaboration. Texts were entirely adequate resources in an information-scarce world: they are less and less viable in an information-rich environment. Inquiry and resource based learning inherently depend on a wealth of information and resources, readily available, organized effectively, easily accessible and ready when the need demands it. (Markuson, 1999, p. 9).

Information literacy and information technology can partner to connect the skills of information seeking and the concurrent thinking skills necessary for evaluating, selecting and using information effectively into the classroom, the library and the computer lab.

"Library media specialists ... realize that a major part of their time must be spent helping students develop the thinking skills that will equip them to not only locate but also evaluate and use information effectively and thereby become information-literate" (Mancall, Aaron, & Walker, 1986, p.19).

Information literacy has emerged as an overriding issue in library instruction (Irving, 1985). It is a need-

driven goal which integrates knowledge of tools and resources with skills and exists independently, but relating to, literacy and computer literacy (Breivik, 1985). Information literacy raises levels of awareness of the knowledge explosion and how information is organized. It involves understanding how computers can help identify, access, and obtain data and documents needed for problem solving and decision making (Horton, 1983). The challenge is not only to create better technology, but also to apply that technology to encourage better thinking and learning. In the future, students will continue to need reasoning ability while the information tools and information access paths they use will change. This concern extends to college-bound students who pursue an academic career as well as to non-college students, who need the life skills of information literacy but have less formal opportunity to gain these skills.

As society moves away from the assembly-line paradigm of the Industrial Age into the data rich environment of the Information Age (Kuhlthau, 1989), the important educational task of preparing students to be independent, life-long learners who are empowered to think for themselves has become the concern of the librarian as well as the classroom teacher. Without the appropriate instruction and support, digitized information becomes a barrier to access.

Libraries in schools have the potential to equalize information access so that society is not composed of information have and have-nots. Concern about the digital-divide extends beyond schools to the workplace. Corporate concerns address not only the technological literacy of employees, but their ability to adapt to new technologies and solve problems. This raises questions of equity in providing learning opportunities in the classroom, the library, and the computer lab, for students to acquire information skills, technical skills and thinking skills. When the use of libraries, information, resources and technology are marginalized, there is no equal opportunity for students to acquire these skills. In a society whose political foundation is built on an informed citizenry, the ability of that citizenry to think effectively is essential (Mancall, Aaron, & Walker, 1986). And thinking effectively has been re-defined by the extraordinary transformation in the way information is accessed.

With advances in both information and technology, the demands on the librarian to provide a variety of materials in many formats expanded the warehousing functions of the job but also clarified the relationship of the library collection to classroom learning. The library media center was viewed as a dynamic assemblage of information that could be integrated with what was going on in the classroom, instead of a roomful of books and films. The teaching role of the school librarian expanded, becoming an extension of the traditional function of providing reference and information services (Eisenberg, 1987). Librarians began to parallel their library skills curricula with the content areas so that the resources they were purchasing were also seen as target resources for library instruction as well as supporting resources for the content area curricula. In addition, the role of the library media specialist was affected by the technology that would not only expand the volume of information available, but revolutionize its storage and retrieval (Eisenberg, Trombly, & Ruth, 1988). Libraries are appropriate places for integrating skills and resources across the curriculum and for affording students opportunities to become proficient in inquiry (Kuhlthau, 1987b).

Before students walk into the library to confront an information search for a curriculum-based research assignment, they have already begun a complex cognitive process. If we are asking students to participate in an integrated library research unit that requires the application of information skills in the content area of instruction, teachers and librarians should be using integrated methodology that does not make false or contradictory distinctions between library and classroom concerns.

Section Three: What the Research Says: The Case for Enhancing School Library Presence

The placement of school libraries in NEASC accreditation standards rests on the broader question of the place of school libraries in the educational process. “Do they make a difference in student achievement?”

Print environments and reading. No one would dispute the connection between reading and learning. It is not surprising that the research spanning sixty-two years “supports the commonsense view that when books are readily available, when the print environment is rich, more reading is done.” (Krashen, 1993, p. 33) Children who read more have more books at home (Morrow, 1983; Neuman 1986; Greaney and Hegarty, 1987). Access to books is the first and most important step in encouraging literacy development (Krashen, 1997). Research reviewed by Krashen (1985, 1988, 1989); Snow, Barnes, Chandler, Goodman and Hemphill (1991) and Foertsch (1992) confirm the association between print environment and literacy development. Young people who read a lot have improved comprehension, vocabulary, spelling, grammar, and writing style. This research was used to justify spending in 1965 Elementary and Secondary Education Act and the value of “flooding children with books.” (Elley, 1991)

Reading and test scores. Several studies have shown that students achieve higher reading comprehension scores when there is greater access to print resources and more time spent in free voluntary reading (Krashen, 1993); McQuillan, 1997; Digiovanna, 1994; Halliwell, 1995; Lipscomb, 1993). Student test scores have risen as library services such as reference, information skills instruction, curriculum integration, and reading guidance have increased (Martin, 1966).

School libraries and reading. As early as 1939, Cleary reported that children in a school with no school library averaged 3.8 books read over a four-week period; children from a school with a school library averaged exactly double, 7.6 books. In addition, Krashen’s meta-analysis (1993) reports Cleary’s findings (1939) that children from the school with the library read “better” books; 84% selected by children were on “approved” lists, compared with 65% of the reading done by the children with no library. Studies show that children read more when they have a quiet, comfortable place to read (Krashen, 1993). School libraries are critical to the teaching and learning across academic subject areas and can provide the access and environment conducive to reading. The research shows:

- Children get a substantial percentage of their reading materials from libraries. When asked where they get their books, 30 to 97 percent of children mention some kind of library (Krashen, 1993);
- Better libraries are related to better reading, as measured by standardized tests. Lance (1994) found that better library collections resulted in better reading achievement scores among elementary schools in Colorado, and these results are consistently reported in further research of replicated studies in other states.

School librarians and reading. Noting the connection between reading and school libraries, Krashen (2001) stated, “Children with libraries and librarians read more books than those in school libraries with no staff. And, children with no libraries at all read the least. Amount counts!” (Krashen, 2001). Krashen’s review (1993) also found that having a school librarian makes a difference in the amount read. Gaver (1963) reported that children who had access to school libraries did more reading than children who only had access to centralized book collections without librarians and read more than children who only had access to classroom collections. Gaver’s data showed a strong correlation ($r = .772$) between the number of volumes available to the children and the amount they reported reading. Gaver (1963) reported that children in schools with full school libraries with larger collections made better gains in reading than did children in schools with smaller central collections, who in turn made better gains than children in schools that had only classroom collections. (Krashen, 1993)

School librarians and student achievement. Studies address the relationship between the library media specialist’s teaching role and student achievement. A strong connection between the teaching role of the school library media specialist and student achievement has been found (Aaron, S.L., 1975; Lance,

Hamilton-Pennell & Rodney, M., 1999). Aaron (1975) showed that a full-time media specialist added to the teaching team improved student achievement in language arts, spelling and math computation. Bailey (1970) found that disadvantaged students increased their language skills by participating in a library resource program. Gengler (1965) reported that students' problem-solving skills increased when they worked with a librarian as well as a teacher. Several researchers reported that successful library media specialists saw teaching as their primary function and were viewed by their colleagues as a vital part of the instructional process (Yetter, 1994; Alexander, 1992; Gehlken, 1994; Bell and Totten, 1992). Student achievement increased when teachers and library media specialists collaborated and integrated information skills into subject content (Grover & Lakin, 1998; Todd, Lamb, & McNicholas, 1993). Both flexible scheduling in the library media center and availability of technology were found to expand the possibilities for teacher-librarian partnerships in curriculum development and teaching (Fedora, 1993; van Deusen, 1993; van Deusen & Tallman, 1994; Everhart, 1992; van Deusen, 1996; Jones, 1994). The research shows that library media specialist leadership, program management skills, an adequate budget, and administrative support are linked to student achievement. Student achievement was higher when the library media specialist had good planning skills and a plan for the development of the library media center (Yetter, 1994; Lance, K.C., Hamilton-Pennell, C. & Rodney, M., 1999). Successful collaboration with classroom teachers depended on library media specialist leadership and strong principal support (Yetter, 1994; Farwell, 1998; Gehlken, 1994; Lumley, 1994).

Emerging from these studies are elements of school library media programs, such as collection size, staffing, and characteristics of the school library media specialist, such as leadership and instructional role, that could be tested as predictors of student achievement.

The Colorado Study. Lance, Welborn, and Hamilton-Pennell (1993) conducted the study, *The Impact of School Library Media Centers on Academic Achievement*, to determine whether students earned higher standardized test scores in language arts when the library media specialist played an instructional role. This study was designed to update the existing research and to develop new insights into the relationship of library media centers and their programs to student achievement.

Advocates of school library media centers have long been convinced of the relationship between strong library media programs and academic achievement. The need for evidence of that relationship was demonstrated by the unprecedented publicity surrounding 1987-88 reports of a proprietary study correlating higher levels of library media expenditures with higher scores on the National Merit Scholarship Test. The lack of satisfactory documentation for these findings was a major impetus for what has become known as "the Colorado study."

The Colorado study applied a variety of statistical techniques to existing data on Colorado library media centers and their school and community to develop and test a model describing this relationship. The isolation of several components of library media services that are especially important predictors of student achievement provided the documentation that library media advocates have sought.

There were two categories of variables:

- Fiscal variables such as total district expenditures per pupil; percentages of expenditures spent on instruction, supplies; and materials, support services, and community services;
- Teacher variables such as pupil-teacher ration; percentage of teachers with master degrees; average years of experience for teachers and average salary for teachers.

The purpose of this study was to identify the relationships of all these independent variables to a single dependent variable, i.e., student achievement. This achievement was represented by composite student scores

on selected components of the Iowa Tests of Basic Skills (ITS) and the Tests of Achievement and Proficiency (TAP). For elementary and middle grades, ITS scores on reading, writing, and work-study skills were used. For secondary grades TAP scores on reading, written expression, and using sources of information were used. These test scores were obtained for grades one, two, four, five, seven, and ten.

Three statistical techniques were used in sequence to analyze these data.

- Correlation analysis identified superfluous independent variables that could be eliminated from further consideration as predictors of student achievement.
- Factor analysis identified related elements within the remaining variables that would allow them to be combined into single entities, thus reducing and refining the number of potential predictors.
- Path analysis conducted through multiple regression techniques measured the direct and indirect effects of each potential predictor while controlling for other variables under consideration.

Each successive phase yielded information about the relationship of specific variables to student achievement. After eliminating redundant variables, the second step in refining the database of potential predictors was to submit related sets of variables to factor analysis. This technique generated several scores that were used to represent groups of related variables.

The final analysis involved developing and testing a model that described the nature of the relationship between each of these variables and the dependent variable, i.e., student achievement as defined by students' MS/TAP reading scores. In this model, all nine independent variable were considered potential predictors, and all were analyzed in relation to reading scores for students in each of the grades under study.

Regression analysis, the technique used to test the model, is designed to assess the strength and direction of each relationship while at the same time controlling for all the others. The larger the path coefficient, the stronger the impact of the predictor.

The study controlled for school and community differences to establish that the findings are not explained by such differences as:

- Teacher-pupil ratio
- Teacher or student characteristics
- Per pupil expenditures
 - Adult educational attainment
 - Socio-economic differences
 - Racial/ethnic demography.

The Colorado study revealed that the relationship between the library media specialist's leadership and teacher-librarian collaboration is critical. The study provided additional evidence linking flexibly scheduled library media programs with higher levels of academic achievement. Other findings include:

1. Students at schools with better-funded library media centers tend to achieve higher average reading scores.
2. The size of the library media center's total staff and the size and variety of its collection are important characteristics that intervene between library media program expenditures and test performance.
3. Students whose library media specialists play an instructional role tended to achieve higher average test scores.

The "Second" Colorado Study. Subsequent studies in Colorado replicated the original Colorado study for the past seven years. The objective of the latest of these, *How School Librarians Help Kids Achieve Standards* (Lance, K.C., M. Rodney & C. Hamilton-Pennell, 2000a) was to help schools improve reading

scores, which were chosen because they are highly correlated with scores for mathematics and other tested subjects. The 200 schools in the new Colorado study are represented in a 67% response rate from a 300-case sample of the state's 1,178 schools serving two tested grades: 4 and 7 (Statewide standards-based testing at the high school level has not yet begun.) The questionnaire, similar to those used in the original Colorado study and subsequent studies in Pennsylvania and Alaska, addressed five sets of issues:

- Staffing levels;
- Time spent on a variety of staff activities;
- Collection holdings by format;
- Usage levels;
- Available technology and its functionality.

Five sets of predictors of academic achievement were yielded by the study:

1. Strongly related characteristics of library programs constituted a positive, statistically significant predictor of academic achievement are:
 - The number of library media specialists and total staff per 100 students;
 - The number of volumes per student as well as the number of print subscriptions and CD-ROM reference titles per 100 students;
 - Library media expenditures per student.
2. Library media specialists who exhibit leadership are more likely to have a positive effect on academic achievement. Indicators of leadership include:
 - Meeting with the principal;
 - Participating in faculty meetings and serving on standards and curriculum committees;
 - Holding meetings of building and district level library media staff and participating in meetings of other Library Media professionals beyond the district (e.g., regional, state, and national conferences).
3. Leadership is the impetus for collaboration with teachers. Where the library media specialist exhibits leadership, she or he is also more likely to:
 - Plan cooperatively with teachers;
 - Teach cooperatively with teachers as well as independently;
 - Provide in-service training to teachers;
 - Manage the computer network that links the library media center, classrooms and labs.
4. Statistical indicators of the importance of technology that included networked library media resources and the World Wide Web and the library media program's role in it include:
 - The number of computers per 100 students;
 - The number of computers providing access to licenses databases per 100 students;
 - The number of Internet-accessible computers per 100 students.
5. Previous research indicates that students perform at higher levels when their access to the library media center is not limited to regularly scheduled class visits. This evidence is contrary to common practice that schedules classes for regular library media center visits. An unexpected finding of this study is that individual student visits to the library media center correlate with test scores, but group visits do not.

The Alaska Study. *Information Empowered: The School Librarian as an Agent of Academic Achievement in Alaska* (Lance, K.C., Hamilton-Pennell, C. & Rodney, M., 1999) included 211 of the state's 461 schools, or 46% of the schools serving the three tested grades, fourth, eighth and eleventh. Like previous impact studies it aimed to determine whether there were any major predictors of academic achievement that could be isolated.

The Alaska study was the first to suggest the important role of the library media specialist as an information literacy teacher as well as an in-service training provider for teachers.

Other findings from this study include:

1. Four major types of library media program data were found to be predictors of academic achievement:
 - Level of library media program development (e.g., staffing level, collection size, program expenditures);
 - Staff activities related to the *Information Power* themes of leadership, collaboration, and technology;
 - Levels of library media program usage;
 - Technology (e.g., school-wide networks providing access to licensed databases as well as the Internet/World Wide Web).
2. Five major predictors of academic achievement included:
 - Level of librarian staffing;
 - Time spent by librarians delivering information literacy instruction to students;
 - Planning cooperatively with teachers;
 - Providing in-service training to teachers;
 - A collection development policy that addresses the issue of challenges or requests for reconsideration of materials;
 - The potential for Internet connectivity;
 - A relationship with the local public library.

The Pennsylvania Study. *Measuring Up to Standards: The Impact of School Library Programs & Information Literacy in Pennsylvania Schools* (Lance, K.C., M. Rodney & C. Hamilton-Pennell, 2000b) included 435 of the state's 1,691 schools serving three tested grades: 5, 8 and 11. The 435 participating schools constituted an 87% response rate from a 500-case sample. The objective and questionnaire were similar to previous impact studies.

The Pennsylvania study demonstrated that the synergy of library media staff, collections, and technology is most powerful when there is an integrated, collaborative approach to teaching information literacy. Other findings yielded five major predictors of academic achievement:

- The presence of both librarians and support staff;
- The level of library expenditures (excluding staff salaries);
- The presence of rich collections of print and electronic information resources (i.e., books, periodical subscriptions, CD-ROM reference titles);
- The extent to which technology is utilized to extend the library information center's reach into the school's classrooms and labs (e.g., Access Pennsylvania, licensed databases, Internet/World Wide Web);
- The extent to which information literacy is integrated in the school's approach to standards and curriculum (e.g., time spent by library information specialists meeting with principals; teaching cooperatively and independently; attending faculty, curriculum committee, and standards committee meetings; managing information technology).

The Texas Study. *Texas School Libraries: Standards, Resources, Services and Students' Performance* (Smith, E.G., 2001) identified goals for further research:

- Do they confirm findings of the original Colorado Study?
- Can these findings be replicated using standards-based tests?
- Can these findings hold up over time?
- Do these findings apply to other states?

The study had three objectives:

1. Examine school library resources, services, and use on the basis of *School Library Programs: Standards and Guidelines* for Texas and determine the need for updating these standards and guidelines so that they better serve communities across the state.
2. Determine the impact that school libraries have on student performance as measured by the percent of students who met minimum expectations on the reading portion of the statewide standardized test, (TAAS).
3. Highlight library practices in the best performing schools.

Data were collected from a random sample of 600 Texas school libraries. The survey data were supplemented with data from the 1999-00 Texas Education Agency's Public Education Information Management System (PEIMS) on school characteristics and student TAAS performance and with community economic data extracted from the Federal Reserve Board's Federal Financial Institutions Examination Council (FFIEC) web site. The study employed more than 200 school, library and community variables in examining the relationship between libraries and TAAS performance, showing that socio-economic variables such as the percentage of white students, Hispanic students, and economically disadvantaged students explain most of the variance in TAAS performance at all educational levels. At the elementary school level socio-economic variables explained 26 percent of the variance; at the middle/high school level they explained 44 percent; and at the high school level they explained 55 percent. Library variables explained a smaller but still very significant portion of the variance in TAAS performance. They explained approximately four percent of the variance in TAAS performance at the elementary and middle/junior level. Also, library variables were generally more important to explaining the variance in TAAS than school variables such as the number of school computers per student, teacher experience, and teacher turnover ratio.

This study compared the 25 schools with the highest percent of students who met minimum expectations on TAAS with the 25 lowest performing schools. A number of differences were found between these two groups that centered around library staffing levels, collection size, cooperative activities with teachers, library technology, and school technology.

Findings show that TAAS performance was associated with different library factors at each educational level as follows:

Elementary Level

- Library volumes purchased in 1999-00 per 100 students;
- Library operational expenditures per student;
- Library computers connected to a modem per 100 students;
- Library software packages per 100 students.

Middle/Junior High School

- Identifying materials for instructional units developed by teachers;
- Providing information skills instruction or groups;

High School

- Library staff per 100 students;
- Library staff hours of operation per 100 students;
- Volumes per students;
- Current subscriptions to magazines per 100 students;
- Planning instructional units with teachers;
- Providing staff development to teachers.

The Texas study demonstrated higher *Texas Assessment of Academic Skills* (TAAS) performance at all educational levels in schools with librarians than in schools without librarians. Over 10 percent more

students in schools with librarians than in schools without librarians met minimum TAAS expectations in reading. On average, 89.3 percent of student in schools with librarians compared with 78.4 percent in schools without librarians met minimum TAAS expectations in reading.

Massachusetts Simmons Study. The results of the Simmons study of school libraries (Baughman, J. & Endringhoff, M., 2000), based on a statewide survey, confirmed the value of school libraries as follows:

- At each grade level, schools with library programs have higher scores on the Massachusetts Comprehensive Assessment System (MCAS) scores;
- At each grade level, students score higher on MCAS when there is a higher per pupil book count;
- At each grade level, schools with increased library use have higher MCAS scores;
- At each grade level, school libraries with more open hours score higher on the MCAS tests;
- At the elementary and middle/junior high school levels, students score higher on the MCAS tests when there is a library instruction program;
- At the elementary and middle/junior high school levels, average MCAS scores are higher in schools with larger per pupil expenditures for school library materials;
- At the elementary and high school levels, students who are served by a full-time school librarian have higher MCAS scores than those in schools without a full-time librarian;
- At the elementary and high school levels, library staff assistance (non-professional help) makes a positive difference in average MCAS scores;
- At the elementary level, students score higher on the MCAS tests when the library is aligned with the state curriculum frameworks. This fact is especially true in schools that have a high percentage of free school lunches;
- At the high school level, schools with automated collections have higher average MCAS scores.

Summary of key findings. These studies found that the presence of an effective school library media program constituted a positive and statistically significant predictor of academic achievement. Reading scores increase with increases in staffing, information technology, and integration of information literacy into the curriculum. While findings from the Colorado, Alaska, Pennsylvania and Texas studies vary somewhat, they share some key common findings:

1. School library media specialists can and do exert a positive and significant effect on academic achievement.
2. Principal support of the library media program and teacher collaboration with the library media specialists are critical to making the library media program an integral part of teaching and learning.
3. For the library media specialist to be a pivotal player, support staff are essential.
4. The library media specialist has a teaching role-both as a co-teacher of information literacy to students and as an in-service trainer of teachers.
5. Library media programs that contribute most strongly to academic achievement are those with the technology necessary to extend access to information resources beyond the library media center to classrooms and labs throughout the school.
6. When all library predictors are maximized (e.g., staffing, library expenditures, information resources and technology, and information literacy activities of library staff) reading scores tend to run 10-15 percent higher.

Other impact studies. An Oregon study, *The Impact of School Library Media Centers on Academic Achievement*, and the *Iowa Statewide Study on Library Services and Programs* are in the stages of data collection. The latter will evaluate library media services and programs at the building level and their impact on student achievement, particularly in reading and provide data for planning the development for stronger programs that contribute to the improvement of student learning

Implications of the research for the place of school library media programs in school evaluation. These compelling findings establish a strong rationale for evaluating school library media programs in terms of teaching and learning in the accreditation process. The review of the literature presented here addresses the question, “Do school libraries make a difference in teaching and learning? And the answer is a resounding “Yes!” Implicit in the placement of the school library media program in the accreditation process is the expectation that school library media programs will have a place in teaching and learning in every school accredited.

The function of school library media programs, like other types of libraries, is to provide facilities, resources and equipment to support the school’s curricula in a highly-charged, information-rich environment. As a support program, its purpose would stop there. Facilities, resources and equipment are, however, only the raw materials that enable the library media program to fulfill its mission. When form is separated from substance, that mission is to improve student achievement. The skills of the school library media specialist to administer, lead and collaborate make the raw materials of the program work to improve student achievement. This mission, as shown in the literature, is integral to the teaching and learning function of schools.

Beyond establishing the place of school libraries in teaching and learning, the predictors of student achievement identified by the school library impact studies coincide with standards that describe an effective school library media program. Given that predictors of student achievement, as reported in the carefully designed research studies that have been replicated with consistent results and reported in this paper, coincide with the standards for evaluation, it seems self-evident that program evaluation is concerned with student achievement. To that end, school library media programs are integral to the process of educating our young people because, “Student achievement is the bottom line.” (AASL, 1998).

Recommendations

The following criteria are applied to an analysis of the NEASC standards :

1. Are the standards relevant to the mission, curriculum, and national standards of the school library media center?
2. Are the standards attainable by the school library media specialist?
3. Can the library media center help it school to achieve these standards?

Analysis of Teaching and Learning Standards. These standards are organized into three categories: Curriculum, Instruction and Assessment.

Curriculum. School library media programs, unlike the other programs listed in the Support Standards, i.e., guidance, health services, special education, personal, career and social counseling, have curricula documents that “...identify those expectations for student learning for which it is responsible and ... clearly articulated learning standards in support of such expectations” and these written documents are “...aligned with the school’s expectations for student learning and ...guide content, instruction, and assessment. (NEASC, 2000, p. 4). In addition:

- School library media programs have a curricular plan that is guided by the national standards published in *Information Power: Building Partnerships for Learning* (1998). This curriculum “...ensure(s) that all students have sufficient opportunity to practice and achieve each of the school’s academic expectations for student learning” (NEASC, 2000, p. 4). Orientation programs, collaboration with teachers, using the process approach, project-based learning and other instructional methods outlined in Section Two. In addition, the school library media center is the only place where an information skills instructional program exists in a school. This program is “...intellectually rigorous and provide(s) opportunities for authentic application of knowledge and skills” (NEASC,

2000, p. 4). It also adds academic rigor to subject area curricula through inquiry-based learning that applies the educational research described in Section Two.

- An information skills curriculum is "...appropriately integrated an ...emphasize(s) depth of understanding over breadth of coverage" (NEASC, 2000, p. 4). The process approach of teaching skills in context helps students to pursue their own learning from resources and primary sources as they "...extend student learning beyond the normal course offerings and the school campus" (NEASC, 2000, p. 4).
- An information skills curriculum is based on and offers opportunities for "...effective coordination and articulation between and among all academic areas within the school as well as with sending schools..." (NEASC, 2000, p. 4). Collaboration with classroom teachers, the use of community resources, as well as networking of librarians throughout the district provide the potential for school libraries to help their schools meet and exceed this standard.
- Library media centers contribute to the school's cache of "Instructional materials, technology, equipment, and supplies, and staffing...for implementation of the curriculum" and it is essential that they are evaluated to this standard. They contribute these elements to the mission and learning expectations of a school.
- School library media programs perform an "...ongoing review and evaluation of curriculum that takes into account assessments of student performance..." (NEASC, 2000, p. 4). It is standard practice for library curriculum to conform to the school's guidelines for curriculum review. Furthermore, the school library media specialist is actively involved in documenting the effectiveness of the program, or outcomes, with statistics on usage, collection development, staffing and other input measures, which are published in an Annual Report. It is probably the most accountable program in the school.
- It is essential to school library media programs and to the success of the school's academic program that "The school...commit sufficient time, financial resources, and personnel to the review and evaluation of curriculum." (NEASC, 2000, p. 4).

Instruction. NEASC 2000 standards for accreditation enumerate indicators for instruction which state, "Instructional strategies shall include practices that:

1. Personalize instruction
2. Make connections across disciplines
3. Engage students as active self-directed learners
4. Involve all students in higher order thinking to promote depth of understanding
5. Provide opportunities to demonstrate the application of knowledge or learning." (Allison, J. 1999).

These standards could have been written specifically for a school library media program; they go to the heart of its mission. In addition:

- School library media programs, unlike the other programs listed in the Support Standards, i.e., guidance, health services, special education, personal, career and social counseling, have formal instructional programs.
- School library media specialists use rubrics, portfolios and journals, and other authentic assessment instruments, to "...provide formal and informal opportunities for student to assess their own learning" and "...use feedback from a variety of sources...as a means of improving instruction (NEASC, 2000, p. 5), in accordance with the guidelines of their national standards.
- As noted in Sections Two and Three, there is a large body of literature that documents the "...current research on effective instructional approaches..." (NEASC, 2000, p.5) and national standards established in *Information Power: Building Partnerships for Learning* (1998) guide school library media specialists toward reflective practice.

- “Adequate time and financial resources...to ensure the continuous improvement of instruction” (NEASC, 2000, p. 5) are required by any program that offers instruction to children and is highly relevant to a school library program because resources and equipment are its raw materials.
- The school library media program offers “Technology...to support instruction and to improve student learning” (NEASC, 2000, p. 5). In addition, it provides instruction in the use of that technology to achieve academic objectives.
- Like classroom teachers, school library media specialists undergo “teacher supervision and evaluation processes...for the purpose of improving student learning” (NEASC, 2000, p. 5).
- The American Association of School Librarians and state and regional affiliates provide “Professional development activities that support the development and implementation of the curriculum.” (NEASC, 2000, p. 4) and “opportunities for teachers to develop and improve their instructional practices... (NEASC, 2000, p. 5) and “opportunities for teachers to develop a broad range of assessment strategies...” (NEASC, 2000, p. 6). Recent changes in the role and standards of library information services programs have encouraged library departments to offer in-service programs and other in-house initiatives in schools.

Assessment. A major innovation of the national standards for school library media programs, as stated in *Information Power: Building Partnerships for Learning*(1998), was the introduction of authentic, or performance-based, assessments to the school library instructional program. The NEASC accreditation standards set indicators for assessment that also align with the standards set for school libraries. School library media specialists use formative, rather than summative assessments. Although they do not give grades and send reports to parents, assessment of information and research skills is often integrated with the assessment of the classroom teacher for project work, conforming to “levels of performance, indicators of successful accomplishment and other data” (NEASC, 2000, p. 6) agreed upon by administration and faculty to assess the progress of students. “Student success in meeting the school’s stated civic and social expectations “(NEASC, 2000, p. 6) is assessed and reported informally, particularly with regard to intellectual honesty and library citizenship, and students are held accountable. School library media specialist do “...base their...assessment procedures on clearly stated expectations for student learning” (NEASC, 2000, p. 6) and use a variety and range of classroom assessment strategies (NEASC, 2000, p. 6) that are described in the national standards. In addition:

- School library media specialists use the results of classroom assessment “to evaluate and revise the curriculum (NEASC, 2000, P. 6) and “to improve their instructional practices” (NEASC, 2000, p. 6).
- The collaborative nature of school library media specialists’ teaching ensures that they “meet to discuss and share student work and the results of classroom assessment for the purpose of revising the curriculum and instructional strategies” (NEASC, 2000, p. 6) and communicate to students and their families how student work and progress are being assessed’ (NEASC, 2000, p. 6).

Support Standards. These standards are divided in three categories: Leadership and Organization; School Resources for Learning; and Community Resources for Learning. They are reviewed below with reference to the three questions stated above for the analysis of Teaching and Learning Standards.

Standards of Leadership and Organization refer predominantly to the evaluation of principals, school boards. With the exception of standards that relate to teachers as leaders, these standards are irrelevant as evaluative tools to the school library media program because they are not within the control of the school library media specialist. (e.g., grouping patterns, schedule, student load and school climate.)

Community Resources for Learning standards refer predominantly to “active community and parent participation, facilities which support school programs and services, and dependable and adequate funding”

(NEASC, 2000, p. 11). The school library media center is an important facility in the academic program, but its value is not as that of a warehouse of materials and equipment. The principles by which it should be evaluated should evolve from its academic mission, which is clearly to provide teachable moments for information-seeking, reading, researching.

The School Resources for Learning standards are not devoted to school library media centers. In fact, the nomenclature never appears in the document. These fifteen standards were written to include guidance and health services, special education, personal, career, and social counseling. Only eight of these standards apply specifically, but not always exclusively, to “library/information services.” These standards require:

- knowledgeable personnel (Standard 5);
- evaluation of school resources (Standard 6);
- a program integrated into the school’s curriculum and instructional program (Standard 9);
- a program that fosters independent inquiry, enabling students and faculty to utilize various resources and technologies (Standard 10);
- a wide range of materials, technology and resources (Standard 11);
- sufficient certified personnel (Standard 12);
- regular and frequent access to facilities and programs before, during, and after the school day (Standard 13);
- Policies for the selection and removal of resources and the use of technologies and the Internet (Standard 14).

While all the standards above identify aspects of a school library media program, only two (Standards 9 and 10) relate to student learning and achievement. When compared to the specificity of the Teaching and Learning Standards, which target curriculum, instruction and assessment, these two standards do not adequately address the school library media program’s mission. These standards do not reflect the rich history and body of literature of school libraries that has moved them to the center of student learning, nor do they support the national standards that emphasize teaching and learning as the main mission of school library media programs.

Recommendations and Implications. The case presented in this position paper supports the following recommendations:

1. School library media programs be evaluated by Teaching and Learning Standards rather than the standards applied to support services.
2. The standards for school library programs be re-written to address facilities, personnel, resources, policies and access in the context of teaching and learning.
3. School library media programs retain a unique status in the accreditation process as a separate category in the Teaching and Learning standards.
4. The new standards be referenced to *Information Power: Building Partnerships for Learning* and school library media specialists and school library professional organizations participate in the revisions.
5. School library media specialists continue to serve on visiting teams in the accreditation process.

It is the position of this paper, and those organizations and educational leaders who endorse it, that the evaluation of teaching and learning in school’s today should include the teaching and application of information literacy. These essential skills are not only facilitated by technology, but are becoming increasingly synergistic with it.. A school library media program brings curriculum across the academic disciplines together with instruction as it addresses reading motivation and competence, the use of technology in learning and information-seeking, and the application of higher order thinking skills in the research process. It is important that the school library media program is recognized as essential to teaching and learning and that it be held to the same standards of excellence as classroom teaching.

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