INFORMATION SKILLS DEVELOPMENT
FOR THE COLLEGE BOUND STUDENT

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By

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Abstract

This project investigates the lack of information and computer related skills in the college student. It focuses on the types of skills required for post secondary students to succeed in their first year. The literature review explores the possible reasons why students have not acquired these skills. It also offers solutions to the problem. The main purpose of the project is the development of a skills continuum for use with first year college students. Key documents such as high school learning outcomes from feeder schools, first year university research assignments, and Sociology 1000, 2270, and History 1001 skills objectives are analyzed. The six stages of the Big Six Model© by Eisenberg and Berkowitz is used as a framework. The continuum will assist first year university instructors at the college level to design research projects that will foster critical thinking, independent learning, and problem solving.

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I would like to thank the instructors at the local college, as well as, teachers from the feeder schools and Dr. Jean Brown for their on-going assistance. I would also like to thank a colleague, Paul Barrett for his valued advice. A very special appreciation to my husband, John and my children, Jane and Daniel for their constant support and encouragement.

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Chapter 1

Introduction

Rationale for Choice of Project

The College of the North Atlantic in Carbonear was an obvious choice for this study for a number of reasons: firstly, they offer the first year university program; secondly, they have on faculty a Learning Resources Specialist; and thirdly, they offer Sociology and History, two courses that have a research component. The overall objective of the project was to develop a research and related computer skills continuum that could assist the Sociology and History instructors when planning research assignments. This goal was reached through consultation with two college instructors, and the teacher-librarians in three of the feeder schools, working through the college's learning resources center. The choice was made to work in a collaborative environment with instructors of first year college students because of the perceived lack of information and related computer skills at that level. These perceptions were a result of literature reading and first hand experience working with post secondary students.

The Project Setting

The College of the North Atlantic is the public college system of Newfoundland and Labrador, with 18 campuses. The Carbonear campus has an overall enrollment of approximately 300 students, and 125 are participating in the first year university program, a joint venture between the college and Memorial University. The campus is one of four campuses that offers a full slate of university courses both face to face and from a distance. The campus has 10 faculty members teaching the university program, as well as a full time Learning Resources Specialist. The Learning Resources Specialist's responsibilities are to develop a learning resources program and manage the resource center. The resource center is fully automated and has a broad range of traditional print, non-print, and electronic resources. Each student has unlimited access to the Internet and other electronic resources including e-mail, electronic newspapers and periodical indexes, and CD ROM technology. The resource center's mandate is to teach students the skills of learning and to be an extension of the classroom where the instructor works collaboratively with the Learning Resources Specialist to develop research projects on a regular basis. This project was to provide a continuum of skills which would better enable the Learning Resources Specialist perform this role.

<u>Objectives of the Project</u>

To develop a continuum of information and related computer skills for first year university courses in Sociology and History by:

1. Examining the curriculum of Sociology 1000 and 2270, and History 1001 and in consultation with the instructors in these courses, establishing a checklist of information and related computer skills required by these instructors, using the Big Six Skills as a framework.

2. To determine, through analysis of learning outcomes obtained by feeder schools, the information and related computer skills that graduates from these feeder schools should have acquired before entering first year university.

<u>Research Component</u>

The Research Question

What research and computer related skills do students enrolled in History 1001, Sociology 1000, and Sociology 2270 need to be successful in these courses?

The Methodology

The methodology involved three major stages: firstly, an analysis of all relevant documents that were obtained from the Learning Resources Specialist. These included provincial high school learning outcomes, Sociology and History course objectives, samples of research assignments in Sociology and History, and the research and technology objectives of the three feeder schools; second, a review of relevant literature in the areas of information and computer skills with particular emphasis on the Big Six Problem Solving Model; and third, the design of a skills continuum of required information and related computer skills objectives in History 1001 and Sociology 1000 and 2270, using the Big Six Model as a framework.

Self-Evaluation

A personal journal was kept of all activities during the course of the project development as well as the strategies used to develop the project.

On-Site Contacts

Three High School Teacher-Librarians in the feeder schools, two University level Instructors at the college who teach History 1001, and Sociology 1000 and

2270, and the Learning Resources Specialist. The continuum was developed for use by the college instructors and the Learning Resources Specialist.

Faculty Supervisor

Dr. Jean Brown, Associate Professor, Educational Leadership and Teacher-Librarianship.

<u>Organization of the Project Report</u>

Chapter 2 is a literature review on research skills and post-secondary students. The review focuses on the need to develop these skills, an explanation of why traditional methods have failed, and alternative solutions to the problem. It also includes examples of the types of skills these students need to be successful post-secondary students.

Chapter 3 introduces the Big Six Problem-Solving Model and elaborates on the steps outlined in the model. It looks at the relevance of the model to the project.

Chapter 4 discusses the steps involved in the development of the project, including the types of documents obtained and details of the collaborative nature

of the project. It also explains how the proposed skills continuum will meet the needs of the campus.

Chapter 5 presents the skills continuum and the elements involved in its development. It also identifies the skills taught in the feeder schools.

Chapter 6 offers personal reflection of the process of developing a skills continuum and provides a commentary on the experience of working with those involved in the project.

It should be noted that many different names are used to denote what many call a librarian. In colleges and public schools in Canada the term might be "learning resources teacher" or "teacher-librarian". In the United States, there is use of the term "library-media specialist". All these terms are used synonymously in this report.

GLOSSARY OF TERMS

Learning Resources

All materials and human resources which may be used to assist students in the learning process. Included are books, magazines, pictures, audiovisual programs, computer software, real objects, models, and people (Learning to Learn, 1991).

Learning Resources Teacher

The person responsible for the school's learning resources and their utilization in resource-based learning. Synonymous terms are school librarian and teacher-librarian (Learning to Learn, 1991).

Librarian

A person in charge of a library or part of a library, a person trained for work in a library (The World Book Dictionary, 1994).

Resource-based Learning

Planned instructional activities, based on a students needs and curriculum objectives, which actively involves students in the learning process through the wide range of appropriate learning resources (Learning to Learn, 1991).

Skills Continuum

A chart outlining a planned, sequential program for skill development that cut across subject lines and bridges the gap between the secondary school and the college. This chart serves as a framework for a cumulative program for the teaching of such skills. It is a guide to planning so that instructors can reinforce whatever skills that students have already attained while at the same time provide a plan to develop skills at a higher level (Davies, R. The School Media Program. 1979).

Chapter 2

Information Skills Development For the College Student

Introduction

The Government of Newfoundland and Labrador (1984) refers to education as a lifelong process. One of the mandates of the provinces' teachers is to teach information and related computer skills. It has long been acknowledged among those who work in college and university libraries that the average student lacks many important skills. Nofsinger (1989) feels that librarians are fully aware that there is a lack of continuity between the skills taught at the high school level and college. Learning occurs over a lifetime and both contribute in significant ways, high school skills need to be extended and deepened in order to carry a student through the college or university years. The skills being referred to are changing due to the introduction of computer technology into the field of education. In addition, Kentz & Gerlack's study (as cited in Daniel, 1997) and Coupe (1993) conclude that it is difficult to determine if students have acquired these skills. This is due to a lack of testing instruments compounded by the fact that most instruments are too outdated to be of any value in the age of information and technology. Many colleges have studied the issue of lack of skills. They have concluded that these colleges do not offer compulsory library courses and that

these skills have to be taught within the curriculum. Advocates of lifelong learning will go a step farther and state that skills should be taught not in isolation but with a clear relevance to the course objectives (Daragan & Stevens,1996; Grover, 1994). It is also common knowledge among librarians and instructors that undergraduates tend to look for the quickest and easiest way to complete research projects (Valentine, 1993). Because they lack the necessary skills the results are less than adequate (T. Murphy, personal communication, January, 1998). Seldom do these same students consult with course instructors and only as a last resort seek the advice of a librarian. Daragan & Stevens (1996) and Thomas Ray (1994) both refer to the need for instructors and librarians to work as partners in curriculum planning and instructional design toward the common goal of helping to develop graduates who have the necessary tools to become information literate and independent learners.

It is therefore clear that library instruction needs to take on a broader scope including a more general concept of literacy skills that can be related to real life situations. Eisenberg and Berkowitz (1990) have proposed the Big Six Information and Problem-Solving Strategy that can be applied to a variety of situations from school to university. This model is referred to extensively among professionals in the field of education. It involves a systematic approach and a framework to use

when faced with an information problem. In many cases it is used as a model for teaching such skills. In addition to students being information literate Eisenberg and Johnson (1996), as part of the Big Six Model, also emphasize the need for students to be computer literate by teaching them the necessary computer skills to allow students to function productively in our information rich society. They advocate that students learn to use computer technology best by having it integrated into the curriculum.

The information explosion has put more demands on student's information skills and requires a new set of skills (Lighthall & Haycock,1997). Students also need to critically evaluate the vast amounts of information on the Internet. The key to these educational issues may lie in the identification of the problem and the cooperative effort of college instructors and college library personnel.

Information Skills

There has been much debate over the type of skills that students need to be successful in a post-secondary environment. No doubt the information explosion has made it even more difficult to define these skills. Crane and Markowitz (1994) refer to a vague set of skills such as being able to "locate current information, use technology effectively, and possess a solid grounding in

curriculum content"(p.42). A clearer definition needs to be established if educators and librarians are to teach students the required skills. Students are no longer considered information literate if they only possess such skills as retrieving information and taking jot notes. These skills, although useful, are considered very low on the cognitive learning scale (Bloom,1956). Bloom argues that students need to be taught higher level skills that require critical thinking. These skills are described in terms such as evaluate, determine, judge, and critique (cited in Eisenberg & Berkowitz, 1988).

In 1995, York University directed a task force to study the first year university experience. The report concluded that the university should promote the acquisition of the following skills: "oral and written communications; the ability to read critically for meaning and point of view, identify, analyze, and resolve problems; research skills; basic numeracy and computer skills "(York University, p.2). Washington State University provides a set of skills that are more specifically viewed as library skills including "using basic reference sources, recognizing different types of citations, and distinguishing between primary and secondary sources" (Nofsinger, 1989, p.52). Daniel, a librarian from York University, gives a more detailed list of skills that fall into three categories:

(a) information literacy skills, such as "understand copyright, plagiarism, and intellectual property;" (b) library and information handling skills, for example "use the library catalogue to search by author, title, and subject"; and (c) computer skills such as "use electronic mail" (Daniel, 1997, p.54-55). In another attempt to document the skills deemed necessary for first year university students, Mary George, in 1988 (cited in Kester, 1994) identified items such as "research in the process of planned inquiry; types of fact finding and hybrid reference tools; catalogue fundamentals; . . . and the principles of selecting and evaluating sources"(cited in Kester, 1994, p.10). The literature indicates these skills are indeed desirable for university students but again these are very low level skills that are not readily transferable to new situations and they do not include computer skills. The American Library Association's (ALA) Presidential Committee on Information Literacy clearly articulates the goals of educators and librarians:

> Ultimately information literate people are those who have learned how to learn. They know how to learn because they know how knowledge is organized, how to find information, and how to use information in such a way that others can learn from them. They are people prepared for lifelong learning because they can always find the information needed for any task or decision at hand. (cited in Daragan & Stevens, 1996, p.72)

Berkowitz and Eisenberg (1988) propose a broader set of skills including questions such as: What are we being asked? Where can we find the answer? How do we pass on this knowledge? and How do we evaluate and improve our

methods? They discuss a simple, logical approach to information problem-solving known as the Big Six Model of Information Problem-Solving. These are skills that can be "transferred and applied from situation to situation" (Johnson & Eisenberg, 1996, p.13) and are "comprised of much more than just location and access to information" (Eisenberg & Berkowitz, 1988, p. 99).

Johnson and Eisenberg (1996) view computer literacy as being able to use "computers flexibly, creatively and purposefully. All learners should be able to recognize what they need to accomplish and determine whether and how a computer can help them do so" (p.13). They see computer literacy and information literacy as a natural combination.

Lack of survey instruments

Librarians appear to know the skills necessary for student success but they need a testing instrument to determine the level of competency of students entering the freshman year: "Indeed . . . [a good survey tool] would provide vital information for those involved in planning and implementing a library instruction program" (Coupe, 1993, p.188). There have been many attempts at developing a survey tool that will accurately test the information skills students possess but unfortunately none have been successful in meeting the need. The literature

indicates that the only standardized test that is repeatedly referred to is *A Library Orientation Test for College Freshmen* developed by Ethel Feagley in 1955. Obviously this test would not adequately test the skills necessary in the 90's. Mary George in 1988 developed a wish list of 11 items that were desirable for first year students to know. At the University of Wisconsin, Kentz & Gerlack, (1989) designed The *Library Awareness Questionnaire* testing minimum competencies of entering freshmen. Gerlack felt that "these skills are not only of great value for academic success, but also for lifelong learning" (p.5). Questions included on the test were identifying elements of a citation, elements of a catalogue card, and interpreting bibliographic information. Again in 1989, Washington State designed a list of 14 basic skills it felt entering students needed and actually possessed. It should be noted that these surveys mostly dealt with lower level cognitive skills such as mere location and retrieval. Most did not address the " higher cognitive level challenges of evaluating, analyzing, and filtering . . . " (Rice-Lively & Racine, 1997, p.37). Bloom (1956) suggested that in order to develop critical thinking skills students need to be offered exercises that will challenge their higher levels of thinking. Later, in 1990, the University of Northern Colorado attempted to measure the general library skills of all undergraduate students. The test consisted of 27 items, 10 dealing with library skills. This test did not focus solely

on first-year students nor did it concentrate on information skills. One of the more comprehensive tools was administered by John Hopkins University in 1991 using the bibliographic objectives from the Maryland Library Association (Coupe, 1993). The test was conducted in the fall and spring with students enrolled in first year Psychology. It contained 16 items including questions on the traditional card catalogue, Boolean operators, Library of Congress, and citations. Even though these items were merely a laundry list of library skills, the results were not encouraging. Of the 16 items the scores ranged from three correct responses to one nearly perfect score (Coupe, 1993). Most of these assessment tools may have included a variety of forms including journals, projects, observations, paper-and-pencil tests, self and peer evaluations and portfolios (Grover, 1994). None of these instruments deal with the larger issue of knowing how to use or how to critique the information. None "reflect goals which require critical thinking skills or the ability to solve complex problems" (Grover, 1994, p.174). Neither do they look at narrowing topics or methods of presentation. Most cover items that are necessary skills but for the most part can be easily taught. The issue of technology is not addressed in any of the tests. Clearly, skills of a technological nature should be an integral part of the necessary information skills being taught.

Causal factors

Why do students lack these basic skills? The literature indicates many factors including outdated perceptions of the role of the librarian, the delivery of library instruction, misconceptions concerning faculties expectations of students, and the students themselves.

Traditionally, even though the library was referred to as "the heart of the college"(Hardesty, 1991, p.1), faculty seldom referred students to the library and they indicated that the library was not required by undergraduates to meet their academic requirements. The collection infrequently reflected the undergraduate curriculum. Faculty saw the librarians role merely as to "protect the books and exercise control over their use" (Rice-Lively & Racine, 1997, p.32) and libraries as "study halls" (Hardesty, p.6). The librarian's role was limited to " the development and maintenance of the collection of documents and the facilities to house and protect them" (Rice-Lively & Racine, p.34) and did not include research design or curriculum development.

Furthermore, this perception was held not only by faculty but by the librarians themselves. Indeed, many times librarians did not indeed possess the skills to integrate research into the curriculum nor the desire to be involved in curriculum matters. Besides not having pedagogical training, they often did not

have the time to deal with many of the students' needs (Daniel, 1997). College librarians felt that high schools were part of the reason why students did not possess these vital information skills, and that these skills should be taught at the high school level (Daniel, 1997 & Kester, 1994). Furthermore, seldom would colleges ensure the teaching of information skills " through mandatory or credit courses . . . or staff dedicated to library instruction" (Daniel, 1997, p. 54). It must be noted that some librarians and teachers believe that library skills "taught in isolation are, at best, ineffective and in some cases worse than no library instruction at all" (Thomas Ray, 1994, p.20). There seems to be little attention paid to the developmental levels of the student, the curriculum needs or the transferability of the skills taught (Eisenberg & Berkowitz, 1988).

Many faculty members may think librarians are "unqualified to participate in curriculum planning" (Thomas Ray, 1994, p.23) and ultimately have no influence on library assignments (McNeer, 1991). Obviously they do not see the librarian as "master teacher" (McNeer, 1991, p.23) nor as a "mirror image" of the classroom teacher as advocated by Brown & Sheppard (1997, p.202). Faculty may also hold the traditional view of teaching , using textbooks as the only resource and the lecture as the only method of instruction. They may limit their use of the library services because of their past personal experiences of failure in the library. Often instructors "assume that students have the required information and library

skills needed to complete their assignments" (Daniel, 1997, p.56). Faculty sometimes lack imagination and creativity when designing research assignments , relying many times on the tried and true term paper. Gibson (1989) refers to the term paper syndrome and warns that " unless challenged by talented and creative instructors and librarians, students [will] continue their superficial research habits (p. 298). Also, not only is there an apparent lack of communication between faculty and librarians, but between high school and college librarians.

Students themselves view the first-year experience and the library as overwhelming and the university as " large, impersonal and uncaring" (Daniel, 1997, p.56). Valentine's (1993) study of undergraduate research behavior revealed several dominant themes. "Undergraduates tended to look for the easiest, least painful way to complete a research project in a timely and satisfactory fashion" (Valentine, 1993, p.302). Students did not use organized strategies taught by librarians because they wanted to get in and out of the library as quickly as possible, they used limited resources and only enough to barely satisfy the requirements of the assignment. Gibson (1989) believes that students often short-circuit development of critical thinking skills because of "procrastination, poor study skills, complacency, and lack of motivation" (p.299). A lack of familiarity with the library and the resources were great barriers to student success. Students were very reluctant to ask for help, many times seeking the advice of fellow

students who possessed no greater skills themselves. More skilled students tended to ask the instructor for assistance and only as a last resort would any student seek the help of a librarian. They "thought that asking the librarian was tantamount to proclaiming failure" (Gibson,1989, p.303). Even though students understood the role of the librarian they feared that they might not understand what the librarian was explaining and thus would be embarrassed. Students in Valentine's view used "research strategies that they perceived will reap the greatest benefits with the least cost in terms of time and social effort" (1993, p.304) Paramount to the students ability and skill in using the library effectively is a shortage of opportunities to practice these skills (Knudsen & Orpinela, 1992).

Impact of Technology

> In a complex world of constant change, where knowledge becomes obsolete every few years, education can no longer be something one acquires during youth to serve an entire lifetime. Rather, education must focus on instilling the ability to continue learning throughout life. Fortunately, the information-technology revolution is creating a new form of electronic, interactive education that should blossom into a lifelong learning system that allows almost anyone to learn almost anything from anywhere at anytime. (Halal & Liebowitz, 1994, p.229)

Most of us will agree with the quotation above and the literature substantiates that technology can play a very important role in developing critical and lifelong learners. "Ensuring technology is used in effective ways requires

knowledge, vision and leadership. Teacher-librarians are in an excellent position to provide that leadership" (Johnson & Eisenberg, 1996, p. 12). They are fully aware that technology has impacted the way we, as learners, communicate, retrieve information, assess the amount of information available, and share knowledge. Thus, to accommodate the changing technology, the role of the librarian is changing in significant ways. They have had to develop sound technology skills that they can use to guide students in the information revolution. O'Connell & Henry say "Information is a valuable and essential resource in an information rich society" (Lighthall & Haycock, 1997, p.126). Technology has allowed access to unlimited amounts of information that is increasing daily. No longer is location and retrieval a major issue. Now students need to be taught how to be critical of the information and skilled in selecting relevant information that is authentic, reliable and current. The Internet allows students to communicate across the world, to find information that 10 years ago may have been impossible to find. Technology has enabled libraries to provide electronic databases through CD ROM's, automated catalogues, e-mail access, and fax machines. The library is no longer a collection of static information that quickly becomes outdated. O'Connell & Henri declare that librarians have to embrace this technology by "shaping and applying [it] in creative and meaningful ways, so that the learning environment develops the individual's ability to generate and communicate

knowledge, thoughts and ideas - using technology as seamlessly as any bibliographic resource" (Lighthall & Haycock, 1997, p.126). Technology places librarians in a vital position where they can "help assure that all ... students master the skills needed to thrive in an information rich world" (Johnson & Eisenberg, 1996, p. 16).

Information skills take on a different definition to include general ideas of asking questions and finding answers by evaluating information. Teacher-librarians realize that any skills, including computer skills, cannot be taught in isolation (Johnson & Eisenberg, 1996), that computers have to be used purposefully. Students should be taught to "determine whether a computer will help [them accomplish their goals] and then use the computer as part of the process of accomplishing that task" (p.13). If the mandate of librarians and educators is to develop lifelong independent learners, then there is support for the position of Crane and Markowitz (1994) who state that "by combining the use of technology with the development of critical thinking skills, students are provided with a rich curriculum which prepares them better for the complexities of the world ahead" (p.42).

Viable Solutions

The literature is abundant with solutions to student's lack of information and related computer skills. Resolutions range from changing the way library skills are viewed to changing the way the learning process is viewed. Embedded in the solutions is the librarian, whether it's the faculty's perception of the librarian or the librarian's sense of him or herself. The key may lie in professional development of librarians and faculty. Librarians can learn how to broaden their view of the information process, develop their skills as curriculum consultants, become computer literate, and understand how learners learn: "The changing nature of the environment demands a commitment to life-long learning with academic librarians being more self-directed and self-motivated to develop new skills that will enable the fullest use of technology and resources."(Rice-Lively & Racine, 1997, p.35). Faculty can update their view of the librarian from "the keeper of books to that of network navigator"(Rice-Lively & Racine, 1997, p.33). Often times faculty sees the librarian as "extraneous to curriculum planning" (Thomas Ray, 1994, p.23). Brown and Sheppard (1997) talk about the teacher-librarian as a mirror image, meaning that "they must not only possess the expertise required of teacher-librarians but they must be mirror images of other teachers if they are to have credibility with them" (p.203). Eisenberg & Berkowitz (1988) redefine the role of librarians to include promoter of literacy, teacher of

information skills, catalyst for change, curriculum and instructional consultant, and information manager.

Communication is another concept recurringly discussed in the readings, not only between faculty and librarians but high school and college libraries (Nofsinger,1989). If faculty members see the librarian as taking on a more modern role in the learning process, consultations should become more frequent. Griswold Blandy (1989) states: "librarians have found that by building alliances with the faculty, they can take advantage of opportunities to build library skills into the curriculum" (p.57). A clear line of communication between the librarians in the feeder high schools, colleges and universities would provide a smoother transition for high school students. Kentz & Gerlach (1989) suggest developing common standards and acceptable levels of learning skills between the two.

Collaborative planning between instructors and librarians can lead to meaningful research assignments that incorporate the teacher's knowledge of the students and curriculum, and the librarian's knowledge of the collection and the information process. "Research has shown that the teaching of library skills in isolation is, at best, ineffective and in some cases worse than no library instruction at all" (Thomas Ray, 1994, p.20). Teaching information and computer skills within the framework of the curriculum (Kester, 1994) appears to be more effective in "transferring and applying skills from situation to situation"

(Johnson & Eisenberg, 1996, p.13) within and across the curriculum and real-life situations. The goal of educators and librarians is not merely to teach retrieval skills but to design research projects that develop problem solving and critical thinking skills so that students become independent learners (Eisenberg & Berkowitz, 1988). Darragan & Stevens (1996) advocate four broad approaches to library instruction including "integrating instruction into the curriculum, focusing on students' psychological types, using learning theories, and linking instruction to the student's level of development" (p.70). Gibson (1989) suggests a diversion from the traditional term paper which lack's creativity to alternatives that promote critical thinking skills, such as comparative studies, real-life case studies, and debates.

Perhaps the most comprehensive solution was developed by Eisenberg and Berkowitz who discuss looking at information literacy in broader terms. In 1988 they developed a simple and logical approach to problem-solving called the Big Six. This model talks about the fundamentals of problem-solving such as: determining the problem being asked, presenting the problem, and ultimately evaluating the entire process. The authors designed the model within the framework of Bloom's taxonomy (1956) of cognitive development, another consideration when designing learning situations. The authors believe that when teaching information skills, activities should be developed to progress from

knowledge to evaluation, from recall to critical thinking (Eisenberg & Berkowitz, 1988).

Conclusion

Librarians have a key position within the learning environment to effectively change the way students view the library and how they develop lifelong learning skills that will allow them to become critical thinkers and effective problem solvers. It is clear that changes need to be made in the types of information skills students are exposed to and the way faculty deals with this challenge. The information explosion has put more demands on students information skills and the role of the teacher-librarian. Students need to become information literate. The key to these educational issues may lie in the identification of the problems and the cooperation of the key stakeholders working together as a team.

Chapter 3

The Big Six Problem-Solving Model

Introduction

Michael Eisenberg and Robert Berkowitz (1988) developed a model that emphasized "a systematic planning strategy to develop the curriculum related functions of the school library"(p.xviii). In 1996 Eisenberg and Doug Johnson expanded the model to include computer skills. Both Eisenberg and Berkowitz had worked in libraries for many years and were aware of the need for a framework or set of guidelines that would assist students and teachers in approaching problem solving. They concluded that information skills were best taught within and across the school's curriculum, and not as isolated library skills that were irrelevant (Eisenberg & Berkowitz,1988). They were also aware that in a society that was information rich, students needed to learn skills that could be transferred to real-life situations, skills that were broad in nature. The library media specialist would become an essential element in this approach and would move beyond the traditional role of librarian to that of promoter of information literacy, curriculum consultant, and catalyst for change (Eisenberg & Berkowitz, 1988).

The Big Six Model is a systematic approach to information problem-solving (see Appendix A). It was developed around "the information problem-

solving process and Bloom's taxonomy of cognitive objectives" (Eisenberg & Berkowitz, 1988, p.99). It assumed that problem-solving skills are adaptable to any situation either academic or real life, and that these skills involve more than locating and accessing information. It also assumed that skills should be taught in a hierarchal manner so that students will eventually develop critical thinking skills: "It is the ability to think at higher levels that allows students to attain transferrable skills" (Eisenberg & Berkowitz, 1988, p.103). The scope of the Big Six[1] involves all levels of Bloom's taxonomy within each of the six steps. It can be applied to all grade levels from kindergarten to university with emphasis on cognitive levels that are appropriate to the students' needs. The model involves "task definition, information seeking strategies, location and access, use of information, synthesis, and evaluation" (Eisenberg & Berkowitz, 1988, p.108).

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[1]Big Six Model of Information Problem-Solving will subsequently be referred to as the Big Six.

Task Definition

The first task is to identify that a problem exists, what it is, and determine the types and amounts of information needed that are relevant to the problem. For example, students may be asked to develop a research question in narrow terms and determine that the sources of information may be found within the local library or to see if current newspapers articles may be appropriate to the task. Objectives in this step as in the following steps include cognitive skills ranging from knowledge to evaluation.

Information Seeking Strategies

This step involves being aware of the various strategies for searching, brainstorming the range of possible sources and selecting the most appropriate strategies and sources for the defined task: "Learners will assess the value of resources for data gathering" (Mankato Schools Information Literacy Curriculum Guidelines [MSILCG], 1996, p.2). For example, when using the World Wide Web, students need to determine the best search mechanism to use, or list where to find literary criticisms in the library. Students should also be able to select information that is accurate, gender fair, current, and authoritative (MSILCG, 1996).

Location and Access

Students are involved in locating both intellectually (in an automated catalogue) and physically (on the shelf) the items that will satisfy the defined information task. A variety of sources is recommended. This step also involves locating the relevant information within the sources. For example, finding a book on planets in the catalogue and locating it on the shelf, or finding articles within The Globe & Mail newspaper index. While these skills are synonymous with library skills, they "are not the sum and total of the library and information skills program" (Eisenberg & Berkowitz, 1988, p.112).

Use of Information

Students, "after finding potentially useful resources, must engage (read, view, listen) the information to determine its relevance and then extract the relevant information" (Eisenberg & Johnson, 1996, p.5). Students must "identify, analyze, and assess how well the information meets a specific purpose" (Eisenberg & Johnson, 1996, p.114). Students must move beyond skimming the information but now must read in depth for a specific purpose, for example, identifying biases and value judgments or summarizing the found information.

Synthesis

This step helps define the finished product. Students must evaluate the information found and organize it. They integrate existing information with new found information to present a summary and critique of the information relevant to the defined task. Students at this stage will engage higher level critical thinking skills such as drawing conclusions and predicting. The learner at this point must decide on the appropriate form of presentation to effectively communicate this information, considering the audience and the kind of information. They must ensure that all sources are accurately credited. Some examples are offering solutions to a problem or using presentation software to present findings in graph format. Synthesis can range from simply presenting facts to effectively presenting complex ideas from many sources.

Evaluation

Evaluation involves making judgments and reflection. This final step determines how effectively and efficiently the problem-solving process was conducted. Was the original information problem solved? Were the steps taken appropriate and, if not, how can the process be refined and improved? The student needs to evaluate the product, the process, and the ethical use of information, including applying the legal issues of plagiarism, copyright, and acceptable use of

resources. Some examples include: which search engine worked best? or did I get the information I needed?

Conclusion

The Big Six offers a logical method to solving information problems that are not restricted to the library, but that will provide a systematic approach that can be used in all subject areas within and outside the school curriculum. It is hoped its users will become proficient problem-solvers and lifelong learners. Because of advanced technology and the ever-increasing amounts of information, learners need to learn how to learn and not what to learn. The school library becomes "an active and integral part of the entire educational program" (Eisenberg & Berkowitz, 1988, p.149). The school librarian should take on the role of curriculum support, "involving a wide range of meaningful, curriculum-related activities "(Eisenberg & Berkowitz, 1988, p.150), ensuring that information skills are taught within the curriculum and can be transferred to real life situations. Rather than the school library meeting short term information needs, it stresses the need for students to become independent users of information. The creators of the Big Six advocate developing critical thinkers who will be valuable participants in the information age.

Chapter 4

Development of the Skills Continuum

Competencies at the End of High School

In order to ensure the skills continuum was to reflect the competencies of the students from the feeder schools, contact was made with teacher-librarians from the three larger high schools in the geographical area. These schools were considered to be representative of the schools in the area. These schools also had a teacher-librarian on staff who advocated resource-based learning and regularly participated in collaborative planning sessions with the teachers. The teacher-librarians were asked to provide a list of skills objectives of the school curriculum which the college bound students were expected to possess. They were also asked to provide any skills continuums that were currently used by the schools. These documents were forwarded by mail or fax to the Learning Resources Specialist at the college. The writer collected a list of all courses used in the three high schools. It was determined that all Computer, Language, Literature and Social Studies courses were relevant to the project because they included study, computer, literacy, information, and research skills. An outline for each course and the revised high school curriculum was obtained from the Department of Education.

The document entitled Learning to Learn, which outlines the policies and guidelines for implementing resource-based learning in the schools of Newfoundland and Labrador, was also of vital importance when determining the competencies of graduating students. It should be noted that some high school teacher-librarians were not confident that students had mastered these required skills (L. Galway, personal communication, March, 1998).

It was revealed after examination of the documents that students had been exposed to skills such as: searching the Internet, using APA documentation, and using periodical indexes to locate articles. A list of the research and related computer skills was then complied .

Expectations at the College Level

The college campus involved in this project is unique because it retained the services of a Learning Resources Specialist. This position is very similar to the role of the teacher-librarian in the public school system. The campus adopted the philosophy of resource-based teaching and learning using the policy outlined in Learning to Learn (1991). The program was initiated in 1994 and professional development was carried out with all instructors, followed by resource-based planning sessions.

The writer met with the Learning Resources Specialist (LRS) on a weekly basis and had continuous telephone and e-mail access. In consultation with the LRS, it was decided that the History and Sociology instructors would be contacted for participation, because of the nature of the course content. Several meetings were set up with the writer, History instructor, Sociology instructor, and the LRS. The instructors provided course outlines, course and skills objectives, sample research assignments, and student's completed research assignments. These documents were examined to determine the types of research and related computer skills required by the first-year students. It became obvious that these skills were very similar to the skills required in high school but were at a more advanced level, for example: students were required to make oral presentations more frequently and were given less direct instruction when doing research. First-year students were required to work more independently because it was assumed by the instructors that these students already possessed some research skills (B. Breckenridge, personnal communication, April, 1998). The caliber of the work was expected to be higher than that of a high school student.

Needs to be Met in Continuum

The skills continuum is hoped to provide a tool to assist the LRS and the Sociology and History instructors with a list of skills that can be used when designing research assignments. It will reflect the needs of the current curriculum and the objectives of each course, and at the same time ensure that appropriate research and computer skills are addressed. It will also take into account the prior learning experiences of the students and build on those skills. Since the Big Six places emphasis on individual learners, it is hoped that this continuum will accommodate a learning environment that will foster independent and individual learning. The skills continuum will give a concrete starting point for collaborative planning and provide a checklist for evaluation purposes.

It is recommended that the LRS provide further in service to instructors. This in service should include an introduction to the developed skills continuum and how it can be practically applied when designing research projects.

Chapter 5

Skills Continuum for Sociology 1000, 2270, and History 1001

The writer developed this skills continuum using the main components of the Big Six Model (see Appendix A). The model was determined to be appropriate because it lent itself to not only research questions but also to any kind of problem solving situation. Consequently, this model could later be introduced to other disciplines within the college. These skills can easily transfer to various situations and levels in the student's academic career. The author used the skills lists complied by the Sociology and History instructors (see Appendices B & C) along with sample assignments (see Appendices D & E). When designing this continuum, emphasis was placed on integrating technology into the teaching and learning process. Determining the prior learning skills of these students was also important. Most high school students have been exposed to many of these skills although the teacher-librarians are not convinced that students have actually mastered them. Consideration was also given to the fact that all high school students have taken Language 2101 which teaches research and study skills. Skills that were introduced in Language 2101 are identified by an *(see Table 2, p.40). It was also a consideration that students who enrolled in the technology courses were usually students that for the most part did not have university aspirations. These students did not have space in their class schedule for electives such as

computer courses. Although technology exists in the high school, it was the perceptions of the teachers involved in the project that students were not expected to be computer literate, because not all teachers were comfortable and skilled with integrating computers into the curriculum. The skills acquired as a result of taking the high school technology courses, namely Computer Technology 3200, 3104, and Computer Applications 2100 were designated in each table (see Table 2, p.40).

Table 1: Skills continuum for Sociology 1000, 2270, and History 1001

1. Task Definition - Define the problem and identify the information needed.

    1.1 Brainstorm to determine what the problem is or question to be answered.*
    1.2 Use interviews with instructor to narrow the area of interest as a suitable topic.*
    1.3 Develop subtopics or headings to answer the question.
    1.4 Outline steps to complete the project.*
    1.5 Determine the kind of information needed to answer the question.
    1.6 Examine the information needs in terms of the question to be explored.

2. Information Seeking Strategies -Determine the range of possible sources and select those suitable.

    2.1 List possible sources of information.*
    2.2 Understand the difference between primary and secondary sources.
    2.3 Select the best sources of information (ie. Internet, catalogue, indexes, human resources, etc.*
    2.4 Be familiar with resources appropriate to the needs.
    2.5 Conclude if sources are accurate, current, culture and gender sensitive, and level appropriate.*
    2.6 Identify biases within the information.*
    2.7 Identify devices for misinformation on the Internet (ex. spelling errors, colloquial language, biases, lack of authority, etc.)

3. Location and Access - Locate the sources and find information within the sources.

    3.1 Develop a plan for searching.
    3.2 Arrange interviews if appropriate.
    3.3 Know where various resources are located in the Resource Centre.
    3.4 Recognize the limitations of the types of resources in the Resource Centre.
    3.5 Be familiar with the resources available through LIBLINE.
    3.5 Locate physically the resources in the Resource Centre using Library of Congress.
    3.6 Know how to locate article from newspaper and periodical indexes.*
    3.7 Understand how to use the automated catalogue (Eloquent) and the MUN catalogue (Unicorn).
    3.8 Use e-mail to request periodicals and books from LIBLINE. and information from experts.
    3.9 Understand what a citation is and how to access information using them.*
    3.10 Know how to use various reference tools such as encyclopaedias, atlases, handbooks, etc.*
    3.11 Know how to operate fax machine to acquire information.
    3.12 Be familiar with Boolean logic strategies, hypertext links, URL's, and search engines.*
    3.13 Skim articles to determine relevance.*
    3.14 Have a working knowledge of the Library of Congress.

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4. Use of Information - Engage in the source and extract relevant information.

    4.1 Take notes for bibliography.[a]
    4.2 Determine if information conveys appropriate point of view.
    4.3 Make jot notes for information to be used later.[a]
    4.4 Identify biases and value judgements in information gathered.[a]
    4.5 Recognize inadequacies in information.[a]
    4.6 Classify central themes.[a]
    4.7 Make inferences from found information.
    4.8 Summarize the information.[a]
    4.9 Record sources of information.[a]
    4.10 Determine strengths and weaknesses in information.
    4.11 Be able to view, download, and open documents from the Internet.[b]
    4.12 Be able to electronically cut and paste information from periodical indexes into
         personal documents.

---

5. Synthesis - Organize and present the information

    5.1 Draw conclusions from information gathered.[a]
    5.2 Offer solutions to the problem if required.
    5.3 Present opposing points of view.
    5.4 Construct a personnel point of view from information gathered.
    5.5 Create printed document using word processing software.[b]
    5.6 Create visual presentation using presentation software.
    5.7 Cite and credit information in footnotes, endnotes, bibliographies.[a]
    5.8 Communicate found information.
    5.9 Summarize information found.
    5.10 Clarify issues in question.
    5.11 Present findings in a format that is appropriate to audience.
    5.12 Use efficiently a documentation style such as APA, MLA,[a] or those set forward by
         the History Dept.

---

6. Evaluation - Judge the product, process and the ethical use of the information.

    6.1 Determine if the steps in the process of completing the project were effective and
         if not how could it be improved.
    6.2 Determine if the finished product answered the question or problem presented.
    6.3 Decide if the method of presentation was appropriate and could it be improved.
    6.4 Apply legal principles such as plagiarism and copyright.[a]
    6.5 Understand and abide by colleges computer policy.
    6.6 Determine if time was used wisely, can it be improved, and how.
    6.7 Analyse the evaluation results.

Explanation of the Skills Continuum

Table 2: Task Definition

I. Task Definition - Define the problem and identify the information needed.
1.1 Brainstorm to determine what the problem is or question to be answered.[a]
1.2 Use interviews with instructor to narrow the area of interest as a suitable topic.[a]
1.3 Determine subtopics or headings to answer the question.
1.4 Outline steps to complete the project.[a]
1.5 Determine the kind of information needed to answer the question.
1.6 Examine the information needs in terms of the question to be explored.

[a] Note that all Level III students have been introduced to these skills in Language 2101.

Items 1.1, 1.2 and 1.4 have been introduced in Language 2101. It was a concern that even though these items may have been covered at the high school level, the skills are not sufficient to deal with the more complex issues at the university level. These skills would also assist the student in laying the groundwork for the assignment.

Table 3: Information Seeking Strategies

2. Information Seeking Strategies -Determine the range of possible sources and select those suitable.
2.1 List possible sources of information.[a]
2.2 Understand the difference between primary and secondary sources.
2.3 Select the best sources of information (ie. Internet, catalogue, indexes, human resources, etc.[a]
2.4 Be familiar with resources appropriate to the needs.
2.5 Conclude if sources are accurate, current, culture and gender sensitive, and level appropriate.[a]
2.6 Identify biases within the information.[a]
2.7 Identify devices for misinformation on the Internet (ex. spelling errors, colloquial language, biases, lack of authority, etc.)

[a] Note that all Level III students have been introduced to these skills in Language 2101.

Even though a number of these skills have been taught in high school, the students would not be familiar with the wide variety of resources available in an academic library. This is also the student's first exposure to the discipline of sociology and therefore they are not acquainted with resources in that discipline. They will also need to fine tune their skills using the Internet especially evaluating the sources of information.

Table 4: Location and Access

3. Location and Access - Locate the sources and find information within the sources.
3.1 Develop a plan for searching.
3.2 Arrange interviews if appropriate.
3.3 Know where various resources are located in the Resource Centre.
3.4 Recognize the limitations of the types of resources in the Resource Centre.
3.5 Be familiar with the resources available through LIBLINE.
3.6 Locate physically the resources in the Resource Centre using Library of Congress.
3.7 Know how to locate article from newspaper and periodical indexes.[a]
3.8 Understand how to use the automated catalogue (Eloquent) and the MUN catalogue (Unicorn).
3.9 Use e-mail to request periodicals and books from LIBLINE. and information from experts.
3.10 Understand what a citation is and how to access information using them.[a]
3.11 Know how to use various reference tools such as encyclopaedias, atlases, handbooks, etc.[a]
3.12 Know how to operate fax machine to acquire information.
3.13 Be familiar with Boolean logic strategies, hypertext links, URL's, and search engines.[a]
3.14 Skim articles to determine relevance.[a]
3.15 Have a working knowledge of the Library of Congress.

[a]Note that all Level III students have been introduced to these skills in Language 2101.

Academic libraries use the Library of Congress classification system as opposed to the Dewey Decimal system used in high schools. All university students have access to the Queen Elizabeth II collection on the main campus of the university through a system called Libline. This allows off-campus students to search the collection via the Internet

and request items via e-mail. Since a majority of feeder schools do not have automated

catalogues students should be introduced to the resource center catalogue.

Table 5: Use of Information

4. Use of Information - Engage in the source and extract relevant information.
4.1 Take notes for bibliography.[a]
4.2 Determine if information conveys appropriate point of view.
4.3 Make jot notes for information to be used later.[a]
4.4 Identify biases and value judgements in information gathered.[a]
4.5 Recognize inadequacies in information.[a]
4.6 Classify central themes.[a]
4.7 Make inferences from found information.
4.8 Summarize the information.[a]
4.9 Record sources of information.[a]
4.10 Determine strengths and weaknesses in information.
4.11 Be able to view, download, and open documents from the Internet.[b]
4.12 Be able to electronically cut and paste information from periodical indexes into personal documents.

[a] Note that all Level III students have been introduced to these skills in Language 2101.
[b] Note that students taking the technology courses have been introduced to these skills.

Item 4.2 requests that students look at a sociological point of view which has

not been part of the students repertoire up to this point. Items 4.11 and 4.12

display technological skills that may not have been possible for students at the

smaller schools due to shortage of teacher expertise and resources.

Table 6: Synthesis

5. Synthesis - Organize and present the information.
5.1 Draw conclusions from information gathered.[a] 5.2 Offer solutions to the problem if required. 5.3 Present opposing points of view. 5.4 Construct a personal point of view from information gathered. 5.5 Create printed document using word processing software.[b] 5.6 Create visual presentation using presentation software. 5.7 Cite and credit information in footnotes, endnotes, bibliographies.[a] 5.8 Communicate found information. 5.9 Summarize information found. 5.10 Clarify issues in question. 5.11 Present findings in a format that is appropriate to audience. 5.12 Use efficiently a documentation style such as APA, MLA,[a] or those set   forward by the History Dept.

[a]Note that all Level III students have been introduced to these skills in Language 2101.
[b]Note that students taking the technology courses have been introduced to these skills.

Here students are exposed to various formats for presenting information
including electronic formats such as Power Point. Sociology students are expected
to have a working knowledge of the APA style of documentation. The History
department at Memorial University of Newfoundland (MUN) uses its own style of
documentation similar to the Turabian.

Table 7: Evaluation

6. Evaluation - Judge the product, process and the ethical use of the information.
6.1 Determine if the steps in the process of completing the project were effective and if not how could it be improved.
6.2 Determine if the finished product answered the question or problem presented.
6.3 Decide if the method of presentation was appropriate and could it be improved.
6.4 Apply legal principles such as plagiarism and copyright.[a]
6.5 Understand and abide by colleges computer policy.
6.6 Determine if time was used wisely, can it be improved, and how.
6.7 Analyse the evaluation results.

[a]Note that all Level III students have been introduced to these skills in Language 2101.

Here students are asked to reflect on the steps they used in completing the project as well as the final product. They are required to use metacognitive thinking to evaluate the process and improve the process if necessary. This may be a new concept for students and may require a great amount of effort. Students can best learn these skills by using logs to record their strategies as they progress though the six steps.

Conclusion

The continuum allows the instructor to consider these skills and use them as a framework for project development. The instructor must work with the Learning Resources Specialist who has expertise in designing activities to develop these lifelong learning skills. The continuum notes those skills that students may have developed prior to entering post-secondary education. This information should show the need for flexibility in research assignments that will accommodate individual students' prior skills.

Chapter 6

Reflections on the Project

The need for students to process information and related computer skills seems to elicit mixed reactions. The provincial college system recognizes the need for computer skills but often these are taught in isolation with little attention to curriculum integration. Carbonear campus is only one of three campuses in the entire provincial public college system that retains the services of a Learning Resources Specialist (LRS). A decision to hire a LRS was made by the former Eastern College and was continued after all five colleges were merged under one provincial college in 1997. The campus involved in the study, on the whole, is receptive to embracing the philosophy of learning resources, but there appears to be some reluctance with some instructors. It should be noted that the instructors involved with the study were very accommodating and eager to offer assistance. The LRS on the campus was hired in 1994 and considerable professional development was conducted. An ongoing effort has been made to introduce the concept to new instructors through consultations and orientations. The campus supports the resource center with an ample budget that allows the LRS to build and maintain a current and extensive collection that reflects the ever changing curriculum. Students have unlimited access to the Internet and are made aware of the services of the LRS during orientation sessions. Students do exhibit

apprehension initially, but many classes have information sessions that are the result of collaboration between the instructors and the LRS. Often the LRS is involved in evaluation of research assignments.

Students entering the first year university program come from varying academic circumstances. Some of the larger high schools in the feeder area have the services of a teacher-librarian, while many of the smaller schools do not. Most students have been exposed to technology in different degrees. Some students are not familiar with automated catalogues or periodical indexes. Most students are not competent in using proper documentation when writing assignments.

The literature undoubtably substantiates many of the things that were clear throughout the study including the perceived role of the librarian by faculty and students. The lack of information skills in the students entering first year university was reiterated by the high school teacher-librarians and the LRS. The need for aggressive professional development with faculty is apparent. The key to any successful learning resources program is a commitment by college administration, faculty, and the librarian. If all stakeholders share that commitment, society as a whole will benefit.

REFERENCES

Abilock, D. (1997). The building blocks of research: an overview of design, process and outcomes. Retrieved March 24, 1998 from the World Wide Web:http://www.nueva.pvt.k12.ca.us/~debbie/library/research/il/infolit1. html.

Atlantic Provinces Education Foundation (1996). The Atlantic Canada framework for essential graduation learnings in the schools. Halifax, NS: Atlantic Provinces Education Foundation.

Armour, Brian. (1998). The big six information problem-solving strategy. Retrieved May 3, 1998 from the World Wide Web: http://www.uq. net.au/~zzredlib/bigsix.html.

Barnhart, C.(Ed.).(1994). The world book dictionary. Toronto, ON.: World Book Inc.

Big 6 information problem-solving basics. (1997). Retrieved April 28, 1998 from the World Wide Web: http://edweb.sdsu.edu/edfirst/bigsix/basics.html.

Big 6 information problem-solving initiative. (1997). Retrieved April 28, 1998 from the World Wide Web: http://edweb.sdsu.edu/edfirst/bigsix/ impliment.html.

Bloom, B. (1956). Taxonomy of educational objectives: The classification of educational goals: Handbook I: Cognitive domain. New York, N.Y.: McKay.

Brown, J. and Sheppard, B. (1997). Teaching-librarians in learning organizations. In L. Lighthall and K. Haycock (Eds.), Information Rich but Knowledge Poor? Emerging Issues for Schools and Libraries Worldwide. Seattle, Wash.: International Association of School Librarianship, pp. 53-61.

Carry out mountain. (1998). Retrieved April 28, 1998 from the World Wide Web: http://prwww.ncook.k12.il.us/Learn...infolit/iladventpage/carryout.html.

Coupe, J. (1993). Undergraduate library skills: Two surveys at Johns Hopkins University. Research Strategies, 11(4), 188-201.

Crane, B. & Lourie Markowitz, N. (1994). A model for teaching critical thinking through online searching. The Reference Librarian, 44, 1-52.

Daniel, E. (1997). High school to university: What skills do students need? In L. Lighthall and K. Haycock (Eds.). Information Rich but Knowledge Poor? Emerging Issues for Schools and Libraries Worldwide. Seattle, WA. International Association of School Librarianship, pp. 53-61.

Daragan, P. & Stevens, G. (1996). Developing lifelong learners: An integrative and developmental approach to information literacy. Research Strategies. 14 (2), 68-81.

Darrow, R. (1997). Harnessing the Internet: Use the big six. Retrieved April, 28, 1998 from the World Wide Web: http://www.clovisusd.k12.ca.us/dis...s/ inter-snd/alta/bigsix/b6eval.htm.

Davies, R. (1979). The school library media program (3rd ed.). New York, NY.: Bowker.

Department of Education. (1994). Technology in Learning Environments. St. John's, NF. Government of Newfoundland and Labrador.

Eisenberg, M. B. & Berkowitz, R.E. (1988). Curriculum initiative: an agenda and strategy for library media programs. Norwood, N.J.:Ablex Publishing Corporation.

Eisenberg, M. B. & Berkowitz, R.E. (1988). Resource companion to curriculum initiative: an agenda and strategy for library media programs. Norwood, N.J.: Ablex Publishing Corporation.

Eisenberg, M. B. & Berkowitz, R.E. (1990). Information problem-solving: The big six skills approach to library and information skills instruction. Norwood, N. J.: Ablex Publishing Corporation.

Eisenberg, M. B. & Berkowitz, R. E. (1992). Information problem-solving: The Big Six skills approach. School Library Media Activities Monthly, 8 (5), 27-29.

Eisenberg, M.B. & Johnson, D. (1996). Computer skills for information problem-solving: learning and teaching technology in context. Retrieved April 6, 1998 from the World Wide Web: http://ericir.syr.edu/ithome/digests/computerskills.html.

Fister, B. (1993). The research processes of undergraduate students. The Journal of Academic Librarianship, 18(3) ,163-169.

Government of Newfoundland and Labrador. (1984). Aims of public education for Newfoundland and Labrador. St. John's, NF.: Department of Education.

Government of Newfoundland and Labrador. (1991). Learning to learn. St. John's.NF.: Department of Education

Gibson, C. (1989) Alternatives to the term paper: an aid to critical thinking. The Reference Librarian, 24, 297-309.

Goodwin, M. E. (1991). The transferability of library research skills from high school to college. School Library Media Quarterly, 20 (1), 33-41.

Griswold Blandy, S. (1989). Building alliances: general education and library skills in a community college. The Reference Librarian, 24, 57-73.

Grover, R. (1994). Assessing information skills instruction. The Reference Librarian, 44, 173-189.

Halal, W. & Liebowitz, J. (1996). Telelearning: The multimedia revolution in education. In Hirschbuhl, J. & Bishop, D. (Eds). Computers in education. Guilford, Connecticut: Dushkin Publishing Group/ Brown & Benchmark Publishers. 229-234.

Hardesty, L. (1991). Faculty and the library: the undergraduate experience. Norwood, N. J.: Ablex Publishing Corporation.

Johnson, D. & Eisenberg, M. (1996). Computer literacy and information literacy: a natural combination. Emergency Librarian, 23 (5), 12-16.

Kentz, R. & Gerlack, D. (1989). Library literacy of incoming freshmen. Madison, WI.: University of Wisconsin.

Kester, D. D. (1994). Secondary school library and information skills: Are they transferred from high school to college? Reference Librarian, 44, 9-17.

Knudsen, C. & Orpinela, J. (1992). Preparation high school or what students should know about libraries when they leave school. Emergency Librarian, 19(5), 12-14.

Hara, Katsuko. (1997). A comparison of three methods of instruction for acquiring information skills. Educational Research, 39(3). 271-285.

Lighthall, L., & Haycock, K. (Eds). (1997). Information rich but knowledge poor: Emerging issues for schools and libraries worldwide. Seattle, Wash.: International Association of School Librarianship.

Mankato Schools information literacy curriculum guides. (1996). Retrieved April 28, 1998 from the World Wide Web: http://www.isd77.k12.mn.us/resources/infocurr/infolit.html.

Markoff Warmkessel, M. & Carothers, F. (1993). Collaborative learning and bibliographic instruction. The Journal of Academic Librarianship.19(1), 4-7.

McNeer, E. (1991). Learning theories and library instruction. The Journal of Academic Librarianship, 17(5). 294-297.

The Minnesota state graduation standards:element five grades 9-12. (1996). Retrieved April 28, 1998 from the World Wide Web: http://www.isd77.k12.mn.us/resources/infocurr/stan5gr9-12.html.

Nofsinger, M. N. (1989). Library use skills for college-bound high school students: A survey. Reference Librarian 24, 35-56.

Ray, Judith T. (1994). Resource-based teaching: Media specialists and teachers as partners in curriculum development and the teaching of library and information skills. The Reference Librarian 44, 19-27.

Rice-Lively, M. & Racine, J. (1997). The Role of Academic librarians in the era of information technology. The Journal of Academic Librarianship, Jan, 31-38.

Teaching information literacy: The big six skills approach to information problem solving. (1996). Retrieved April 27,1998 from the World wide Web: http://www.itrc.ucf.edu/webcamp/final_projects/barney/big6/htm.

Valentine, B. (1993). Undergraduate research behavior: Using focus groups to generate theory. Journal of Academic Librarianship, 19 (5), 300-304.

Williams, L. (1992). Our Children Our Future. St. John's: Government of Newfoundland and Labrador.

York University Task Force in Facilities, Colleges and the First-Year Experience. (1995). February report to the Vice-President (Academic Affairs). Retrieved January 22, 1998 from the World Wide Web: http://www.yorku.ca/ admin/ academic/tf-rpt5.htm.
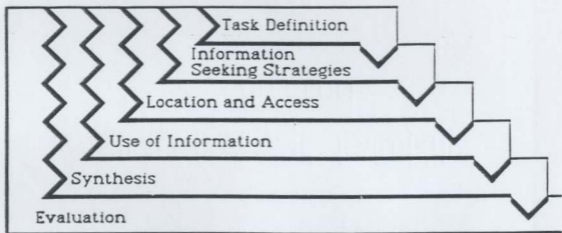
APPENDIX A

Big Six Skills Model

The Big Six Skills:
A Library & Information Skills Curriculum
© Eisenberg & Berkowitz, 1987

Task Definition

Information
Seeking Strategies

Location and Access

Use of Information

Synthesis

Evaluation

(Source: Eisenberg, M. & Berkowitz, R. Curriculum initiative: An agenda and strategy for library media programs. Norwood, NJ: Ablex Publishing Corporation.)

APPENDIX B

Sociology Skills Objectives

SKILLS LIST FOR SOCIOLOGY 1000 & 2270

1a.   Must be able to conceptualize a topic and narrow down to an area of interest
1b.   Must be able to distinguish between relevant and non-relevant materials.
1c.   Must be able to select information that is sociological in nature as opposed to historical or medical.

2a.   Must possess basic keyboarding skills and be familiar with keys such as enter, escape, etc.
2b.   Must be able to distinguish between keyword and subject search.
2c.   Must be able to use a mouse.

3a.   Must be knowledgeable about the Resource Center and its catalogue.
3b.   Must be able to intellectually and physically locate items in Resource Center.
3c.   Must be able to use effectively the Internet, SIRS Researcher periodical index, Globe & Mail newspaper index, Libline, etc.
3d.   Must be familiar with Unicorn and be able to locate resources on it.

4a.   Must possess browsing and skimming skills.

5a.   Must be able to use other technologies such as e-mail and faxes to help access information.
5b.   Must be aware of the role of the Learning Resources Specialist and ask for help when needed.

6a.   Must be familiar with word processing software.

APPENDIX C

History Skills Objectives

SKILLS LIST FOR HISTORY 1000

1a. Students must have a familiarity with university library. (Current Contents)
1b. Students must be able to access the Mun. Library via Internet.
1c. Students must have basic knowledge of computers including typing.
1d. Students must be able to select relevant materials for assignment.

2a. Students must be able to locate intellectually and physically relevant items for research paper.
2b. Students must select appropriate information within the text.

3a. Students must select a broad .topic and narrow it down to a feasible topic.
3b. Students must be able to present an argument in their research paper.

4a. Students must be able to present the argument in a written report with proper English grammar.
4b. Students must have a command of word processing software.

APPENDIX D

Sample Sociology Assignment

SOCIOLOGY 2270   Winter/98   Terry Murphy

You are required to do a book review and a research project for this course worth 20% each. Each assignment should have a covering page with the following information: title, your name, instructor's name, course name and number, due date.

Book Review: "Angels Crying" by Tom Moore.DUE: Friday, February 20

Give a brief plot summary explaining the events that led to Tammy's death. How did social workers, the police, foster families and other participants in the 'system' fail Tammy? What changes would you make in the system to prevent the abuse of children like Tammy?

Use quotation marks if you use a direct quote from the novel and indicate the page number where the quote can be found. i.e. "****." (P.12) The book review should be approximately 7-8 double-spaced, typed pages in length.

Research Project: Article Reviews. Due: April 7.

Students are to select ten different articles all of which focus on some aspect or theme of family life (i.e. child abuse, child neglect, senior abuse, alcoholism, family violence, lesbian or gay families, new reproductive technologies, religiosity in the home, other topic as approved by the instructor.) For example, you might choose 10 different articles which discuss alcoholic mothers or 10 different articles which discuss sibling violence.

Your selection of ten articles will be taken from the following sources:

* three articles from the Internet
* three articles from a newspaper or news magazine such as the Globe and Mail (available on CD), TIME, Maclean's, etc.
* three articles from SIRS
* one article from CURRENT CONTENTS.

The written portion will consist of 1-1.5 typed pages for each article that is reviewed (for a total of 10 pages). In your review you are to provide a brief summary of the main points of the article. I also want you to include a personal commentary on the article where you identify any biases or where you identify particular strengths and weaknesses. What impressed you most about the article? Was there anything about the style or content that turned you off?

In addition to a covering page, you will indicate the title of the article, the authors, page references (if any) and the source at the top of each summary.

Example:

"The Scourge of Wife Abuse" by Patricia Chisolm. **Maclean's**. October 30, 1995. Pages 47-50.

    This article focuses on a crime that is often hidden - wife abuse. Chisolm discusses new legal measures in some provinces to protect women from abusive partners....

APPENDIX E

Sample History Assignment

History 1001 Essay Proposal Guidelines

Proposal   Due: **Feb. 4 1998**   (10%)

Final Draft   Due: **March 23, 1998**

FINDING A TOPIC

* Select a topic from the time-period 1850-1990

* Make sure the topic is clearly defined and manageable

* Do not do something that does not interest you

* Begin research with preliminary reading from the textbook

* Use one or two other general texts

* Utilise footnote/endnote references and bibliographies of the intial sources to generate more potential sources

* Make sure that there is enough information to sustain your original enquiry

* Construct questions for an analytical, not a narrative, essay

* Ask questions for which you do not know the answers (that is, they require research)

* Ask questions that will yield significant answers

* Concentrate on one or two significant issues

* Move from the general to the particular. There is insufficient detail/analysis in general books and encyclopaedias to sustain a research project

ESSAY PROPOSAL

* Heading of topic/student/course

* Two short paragraphs outlining specific question (s) you wish to pursue and showing some knowledge of topic area

* Partly-annotated bibliography of the books and articles you think are or could be useful (5 items, 3 annotations)

SAMPLE PROPOSAL

History 1001 (2)   The Origins of Segregation in South Africa 1902 - 1920s

by Fred Wilson (student number)

<u>Topic</u> In 1910 South Africa became independent under a white minority government. The country's black population was excluded from political power under a system known, from 1948 onwards, as <u>apartheid</u>. Discriminatory legislation against blacks, however preceded 1948, although segregation. according to our textbook (p. 1165), was "somewhat haphazard". For instance, in 1913 the Native Lands Act forced blacks to live in reserves while most of the country was preserved for the privileged 20% of the population - the whites. This paper traces the origins of segregation, from after the Boer War (1899 - 1902) to the so-called "civilized labour" policies of the 1920s.

<u>Questions</u> What types of segregationist measures were implemented from 1902 to 1920s? What was the motive-force behind these measures? If, as the textbook suggests, segregation was "somewhat haphazard", does it mean that there was no consistent policy? The nature of and reasons for segregation in South Africa are the focus of this essay. (World Societies, pp. 1165-67)

BIBLIOGRAPHY

Beinart, William   <u>Twentieth-Century South Africa</u> Oxford: Oxford University Press, 1994.

Legassick, Martin   "British Hegemony and the Origins of Segregation in South Africa, 1901-1914" in <u>Segregation and Apartheid in Twentieth-Century South Africa</u> edited by William Beinart and Saul Dubow, London: Routledge, 1995.

[Legassick claims that the British started segregation before they handed over power to the Afrikaners. This was because business was British-owned, and segregation was a way of ensuring blacks could continue to be used as cheap labour.

Mabin, Andrew "Comprehensive Segregation: the origins of the Group Areas Act and its Planning Apparatus", <u>Journal of South African Studies,</u> 18 (1922), pp 405-29.

Oliver, Roland and Atmore, Anthony <u>Africa Since 1800</u> New York: Cambridge University Press, 2nd Ed., 1972.

[Oliver and Atmore provide a comprehensive overview of segregationist legislation for the period 1902-39 in Chapter 15 and is especially strong on the making of government policy]

Plaatje, Solomon <u>Native Life in South Africa</u> Johannesberg Ravan Press, 1982 (originally published in 1916)

[Plaatje was an educated African who fought the 1913 Native Lands Act. He thought this segregationist measure was hasty and ill-conceived, and the result of pressure from white farmers concerned with African competition for land. This book reproduces the 1913 legislation in full, as well as the parliamentary debates]

Rich, Paul "The Origins of Apartheid Ideology: the case of Ernest Stubbs and the Transvaal Native Administration, 1902-32", <u>African Affairs</u> 350 (1980), pp. 229-51

Worden, Nigel <u>The Making of Modern South Africa: Conquest, Segregation and Apartheid</u> Oxford: Blackweil, 1994