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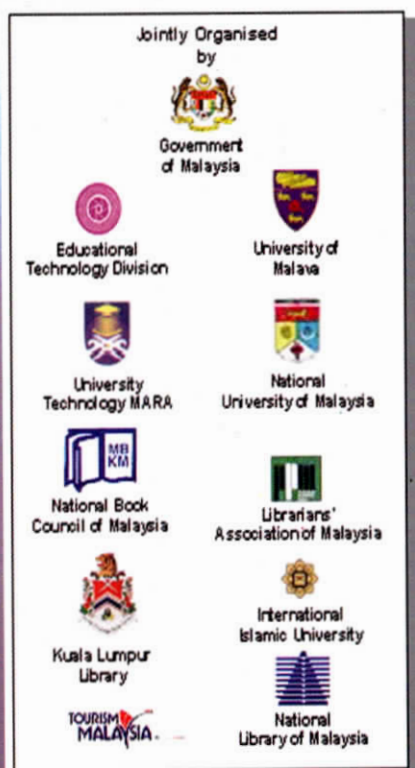
School Libraries For A Knowledge Society

Proceedings of the
**31st Annual Conference of the
International Association of School Librarianship**

and the

**Sixth International Forum on
Research in School Librarianship**

**Petaling Jaya, Malaysia
5 - 9 August 2002**



edited by

**Diljit Singh, Abrizah Abdullah
Suscelah Fonseka and Brian de Rozario**

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Introduction

We are entering the knowledge society. Some countries are already in it, while for others it is on the horizon and is fast approaching. The knowledge society, as characterized by knowledge and information being major resources, information and communication technologies being widely used, changes in technology being rapid, and globalization allowing for collaboration and competition, has implications for all levels of the populace.

This conference proceedings represents a selection of papers presented at the 31st Annual Conference of the International Association of School Librarianship held in Petaling Jaya, Malaysia on 5 - 9 August 2002. The theme for the conference, **School Libraries for a Knowledge Society**, reflects the recently published IFLA/UNESCO School Library Manifesto, the preamble to which states:

The school library provides information and ideas that are fundamental to functioning successfully in today's information and knowledge-based society.

The twenty-nine papers here reflect a variety of opinions, experiences and research on the implications of the knowledge society for school libraries.

David Loertscher, in his keynote address *Building Knowledge-Rich Environments for Youth: A World-wide Challenge for Schools and School Librarians*, outlines the development of a digital school library intranet as an information-rich and technology-rich environment. This environment is designed to provide a nurturing and safe environment for both students and teachers throughout the school and extend into the home. Built upon this environment, he proposes strategies to stimulate the rise of a knowledge-rich environment, using concepts of collaboration, information literacy, user control, and the phenomenon of small world networks.

The Pre-conference workshops were intended to help participants equip themselves with practical ways of dealing with the knowledge society. **Blanche Woolls**, in her workshop *The Best Way to Ask*, guides school librarians in learning to build a case to convince others of the value of the school library in education. She puts forward suggestions to turn the school librarian into an effective presenter so that audiences respond in a positive way to requests. **Suzette Boyd**, in her workshop on *Developing Power and Influence for the Professional Teacher Librarian*, shares her experiences and findings on the characteristics of successful teacher librarians who exert a strong influence. Then, in her workshop on *Fast and Furious Cataloguing for the Overworked and Underutilized School Librarian*, **Dianne McKenzie** shares tips and hints on the important but time-consuming task of cataloging.

The conference also incorporated the Sixth International Forum on Research in School Librarianship. Eleven papers on various aspects of research are included in the proceedings.

Laurel A. Clyde sets the tone with her comprehensive paper on *Developing the Knowledge Base of the Profession: Research in School Librarianship*, which analyzes published research over the ten-year period 1991 to 2000 in the field of school librarianship. The aim of her study was to identify the country of the research, the type of publication in which the research was reported, the research methods used, and the aspects of school librarianship that were investigated.

This is followed by **Dorothy Williams** and **Caroline Wavell**, who examine the impact of the school library on learning in their paper, *Learning and the School Library Resource Center*. Based on a study conducted in Scottish secondary schools, they discuss some of the major themes that emerge, such as the impact the library has on formal academic attainment and informal personal achievements, factors that limit the learning, and how this relates to the type of library provision in terms of resources and professional expertise.

Janet Murray and **Barbara Bugg**'s paper on *Real World Research - Using Collaboration between Researcher and Practitioner to Maximize Research Outcomes* focuses on the relationship between researcher and practitioner, and the mutual benefits to each. Their paper also discusses factors that contribute to the development of a working relationship between the research team and the school library staff.

Research in Children's Information Seeking Behavior is the subject of **Yushiana Mansor**'s paper, in which she provides an overview on the significance of studying information seeking behavior of children to enhance the role of school libraries. A discussion on the different models of information seeking is presented, with a focus on children's information seeking behavior in the electronic environment. She also outlines issues related to children access and barriers to information, and offers suggestions on the future research.

Tom Jørgensen describes a research project concerning the cultural aspects of the Danish school library. His paper, *The Cultural Dimension of School Libraries in a Knowledge Society*, comprises a theoretical section, in which he tries to discover how the school library can contribute to the cultural education of students. There is also an empirical section, in which he tries to sketch a picture of the school librarians' perception of their own practice as cultural intermediaries.

In *Sculpting an Information Literate School Community: Looking for Touchstones*, **James Henri**, **Suzette Boyd** and **Gayner Eyre** provide findings from a collaborative action research project in a large private school to implement a holistic approach to information literacy, and to embed information literacy within teaching units in the school. They report on the experiences of creating an awareness amongst teaching staff of techniques and resources to improve the information literacy process amongst students, and of the potential role of the library in collaborative practices.

Ken Haycock reviews several dilemmas that challenge conventional wisdom regarding the delivery of school library services. In his paper, *Strategic Directions and Newer Dilemmas for Teacher-Librarians and School Library Resource Centres* based on experiences in Vancouver (British Columbia, Canada), he describes how the School Board has seen its intellectual and material assets diminish with growing confusion about the role of the teacher-librarian, particularly with regard to information technologies.

Based on the awareness of the need for *all* teachers to be information literate, **Penny Moore** and **Nicki Page** report on the *Teaching for Information Literacy: Online Professional Development Challenges*. This report is a response to a proof-of-concept project to create an online resource for use in self-directed study by teacher-librarians and teachers.

Using her study in South Africa as a basis, **Anna-Marie Arnold** discusses the need for appropriate information policies for social and economic development in *National Information Policies - A Comparative Study with Particular Reference to South Africa and*

School Libraries. As school libraries form an integral part of the modern approach to teaching and learning, a number of recommendations are made for governments to address in a national information policy.

Zainab A.N and **Abrizah Abdullah** then describe an experimental approach in the development of *Online Library Systems For Malaysian School Libraries*. This was a follow-up to a user study, which indicated that students in general borrowed books from the library by browsing the shelves and seldom used the card catalogue for searching. User acceptance test showed that the majority of students found the systems user friendly. Students were also more successful in the search tasks given.

Abrizah Abdullah, **Nor Edzan Nasir**, **Lok Chee Mei** and **Khoo Mei Lee** describe the development of a school library management system in their paper, *Automating Secondary School Libraries: A Web-Based Library Management System*. The system aims to provide an effective and efficient way of acquiring, cataloguing, searching, retrieving, downloading and maintaining of library materials, and operates in a consortium where school libraries can share information resources but still maintain separate library databases. User acceptance tests showed that a majority of respondents found the system easy to use.

The conference also saw some exciting professional presentations based on experiences, opinions, and ideas of the presenters. Fourteen of those papers are represented here in the proceedings.

Chan Foong Mae in her paper *Developing Information Literacy in the Malaysian Smart Schools: Resource-Based Learning as a Tool to Prepare Today's Students for Tomorrow's Society*, reminds us that today's students are surrounded by more information from more sources than ever before. In order to deal with the vast amount of information they will encounter, they must develop skills not required of previous generations. Since schools cannot teach all that students need to know, a better way is to teach them to manage the information resources. Although schools should still identify the basic information that students need, schools must also teach "information literacy". She goes on to describe the Malaysian Smart School concept, where learning is intended to be more self-directed, self-paced, and self-accessed, and more meaningful.

There have been global calls for emphasizing innovative thinking and creative problem solving in schools, and a more collaborative role for school libraries to support the new focus. Based on the results of a study of a selected group of thirteen media resource libraries in Singapore, **Shaheen Majid**, **Abdus Chaudhry**, **Schubert Foo**, and **Elisabeth Logan** put forward a proposal on *Developing 21st Century School Media Resource Libraries for Singapore: An Assessment and Proposal from a Library and Information Science Education Taskforce*. The proposal includes recommendations for a change in status of the School Media Resource Library and its supervisor, additional training and education for these supervisors, improved access and connectivity for inter-school cooperation, and more collaborative collection management policies.

In the knowledge society, increasing emphasis is being placed on independent, resource-based and technology-based inquiry learning. This learning process requires teacher librarians and their teaching teams to have access to an expanding range of curriculum information and teaching/learning methodologies. **Karen Bonanno** in her paper, *Knowledge Building Through Multiple Literacy Learning*, shares an approach to learning in regard to a

sequential, developmental and progressive learning within an information-processing framework. This framework becomes the backbone and 'vehicle' through which learners are able to demonstrate what they know and can do within an outcomes-based curriculum.

A school library can be an intellectual power center, a dynamo within the school, helping to build citizens of a knowledge society. In their paper, *The School Library as a Dynamo within the Learning Community of the School*, **Elizabeth Greef** and **Yvonne Jenkins** describe their experience at St Andrew's Cathedral School in collaborating with teachers using a variety of research-based units of work designed by teacher librarians and based on Bloom's Taxonomy. The paper also discusses the advantages of and strategies for using an Intranet to support teaching and learning, as well as elements helpful for nurturing a culture of collaboration and a vital relevant library.

Digital learning objects are a new form of resources which teacher librarians will be required to manage and make accessible to teachers and students. **Judith Timbs** in *New Opportunities: Teacher Librarians Managing Digital Learning Objects* shares the Australian experience where large-scale national and state initiatives are underway to develop a critical mass of learning objects. The development of a Learning System Architecture has also become a vital step to make it possible to manage these learning objects. Packages that will enable students and teachers to communicate, collaborate, locate and access resources within intellectual property arrangements, assemble digital resources into learning sequences, assess and report are all necessary requirements.

Pradeepa Wijetunge discusses the implications of knowledge society on education, and the role of teacher librarian in the knowledge society in Sri Lanka. The paper, *Developing a Knowledge Society through Teacher Librarians: A Conceptual Model For Sri Lanka*, discusses the status of school libraries in Sri Lanka, and the establishment of National Institute of Library and Information Science (NILIS), with an emphasis on training of teacher librarians by NILIS. It also describes the implementation model of its knowledge skills program, and its contents.

Gail Parr and **Nguyen Chung Hong** in their paper, *Western Theory – Vietnamese Praxis*, provide an ethnographical account of four years of experience and professional collaboration with different parties within an academic environment in Hanoi, Vietnam setting up an open access library. The paper provides useful lessons for consideration for those who would like to facilitate the blending of western practices in librarianship with local knowledge in developing countries, such as Vietnam.

In *Searching for Knowledge: Teaching Information Technology to Secondary Students*, **Eleanor B. Howe** discusses the importance of accurate knowledge to a knowledge-based society. She presents the rationale, organization, and content of a short course in electronic search skills that enables students to retrieve accurate information by evaluating their searches, citations, and resources in a variety of databases. Focusing on the Seven Steps in the electronic search process, the course develops students' skills in thinking, computer literacy, and the ethical use of information.

Zainab A.N., **Abrizah A.** and **W. K. Ng** share their experience at developing a prototype of a digital library in *Collaboratively Building Digital Libraries: Focus on Local Historical Resources for Educational Use*. The system supports uploading, indexing, searching and retrieval modules supports the creation, capturing and sharing of historical data

from distributed sites and user groups, and also supports multi-format digital resources (text, images, audio and video clips)

In this age of technology, reading is often neglected. **Elizabeth Greef, Yvonne Jenkins** and **Anthea Comer** in their paper, *The Power and the Passion: Igniting a Love of Reading through Literature Circles*, present a simple, successful Literature Circles model they have used at St Andrew's Cathedral School within the context of the importance of developing reading as a foundation for building knowledge. Their experience covers crucial factors for success of the program, practicalities and procedures, the selection of books, and strategies for substantive discussion and a book list of the most successful titles.

Janet Murray and **Jacinta Godinet** review the development of school libraries in the South Pacific in *Issues for School Libraries in the Pacific: A Case Study – Western Samoa*. Drawing on recent experiences in Samoa, where the authors have worked together on the upgrading of libraries in government schools, the authors discuss the practical issues currently facing school libraries in the region.

HIV / AIDS has impacted history in a global manner. Sub-Saharan Africa has been greatly affected by it, with Botswana perhaps being the hardest hit. The onslaught of this viral war is being counteracted from many battlefronts. In her paper *The Fight Against HIV / AIDS: Are the School Libraries at the Battle Front?* **Margaret Baffour-Awuah** examines data from twenty of Botswana's educational libraries to determine how much, and to what extent the libraies are providing information on HIV /AIDS in varied formats.

Project-based learning is gaining ground in Swedish schools. The Swedish Government has recently decreed that senior high school students must carry out an extensive piece of research project. Working with projects has made the school library in Sweden into an educational resource. In their paper, *Pippi's Pancakes - Culinary Jam Sessions in the School Library: The Library as an Educational Resource in Project-Based Learning*, **Marianne Ageberg** and **Margaretha Holstenson** provide some ideas on how project-based learning is facilitated through teamwork between librarians, students and teachers in two Swedish senior high school libraries, as well as specific problems that they have encountered.

There are many challenges ahead for school libraries. **Suzanne Bancel** describes one set of them in *When Wife Meets Mother: Norwegian School Libraries - An Arena For Teacher/Librarian Identity Conflicts*, where she explores reasons for the lack of school library services in Norwegian primary schools. The basic thesis is that libraries and primary schools have developed differently, despite sharing common origins from the Age of Enlightenment. Libraries and library work are seen as belonging to a masculine metaphor, while primary schools and teaching are seen as belonging to a feminine metaphor. These metaphors reflect traditions and attitudes that affect everything from basic democratic ideologies to ways in which we relate to classroom space and library space, as well as the ways in which teachers and librarians organize and advocate for working conditions.

Together, these papers make interesting reading, contemplation and a basis for action concerning **School Libraries for a Knowledge Society**.

*Diljit Singh, Abrizah Abdullah,
Suscelah Fonseka and Brian de Rozario*

Building Knowledge-Rich Environments for Youth: A World-wide Challenge for Schools and School Librarians

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Abstract

This paper outlines the development of a digital school library intranet as an information-rich and technology-rich environment designed to provide a nurturing and safe environment for both students and teachers throughout the school and extending into the home. Emphasis is given to the creation of individualized views of the intranet by both students and teachers complete with academic, career/professional, and personal information spaces. Built upon this environment, the author proposes strategies designed to stimulate the rise of a knowledge-rich environment or learning community using concepts of collaboration, information literacy, user control, and the phenomenon of small world networks.

Knowledge-rich environments, the amalgamation of information-rich spaces with technology and active learners, are emerging very rapidly in the early 21st century. They have the potential to nurture every learner in a world fraught with division and widening disparity.

For the past five years, this author has been mulling over the major shift in technology, the Internet, and the role of the school library. Trends in these three fronts have been both exciting and troubling.

In this paper, the author will outline an emerging view for the creation of a digital school library intranet which will, in turn, be the foundation of a knowledge-rich environment. In doing that, he recognizes that a world-wide audience of readers will have to do some translation to compensate for his lack of experience and he begs the reader to do that as a different perspective is proposed.

Information Environments: A Background

The information environment for millions of children around the globe consists of a family and social structure interpreting the environment surrounding it. Such cultures are generally under-appreciated in the modern world because the shrinking global community is uncertain how to coexist with the strengths those cultures bring.

The Hmong people, for example, had a very difficult time trying to adapt to the American society after the Vietnam War. In Denver, Colorado, where I lived at that time, Hmong men, transferred from a rich mountain experience and suddenly were shifted to a modern, highly competitive and capitalist society, were dying for no apparent reason other

than cultural shock. Of all the difficulties experienced, the change in cultural information systems to academic information environments was just as shocking as the change in food, terrain, and value systems. One could not succeed in American life using previous knowledge systems because a family's survival depended on quite a different set of rules. The traditional information systems were not robust enough to adapt when the immediate need was to provide a living for one's family using almost none of the previously-known skills.

Millions of other children in the world, in addition to their cultural knowledge-based systems, have the minds of their teachers. They may have no books, computers, or even paper and pencils, but in addition to their family and environmental knowledge system, they have the experience of teachers with knowledge systems beyond their local culture. In American newspapers, many stories of the reopening of schools for Afghanistan children have been circulated in a celebration of children and teachers who want to grow and develop and be able to seize opportunity.

Still other millions of children may draw not only upon their culture and their teacher, but have the advantage of a textbook as an added information system. Textbooks have been wonderful inventions because they combine the expertise of many subject specialists coalesced through the eyes of a textbook author into a very versatile data storage mechanism. These information packages are very convenient and available for use both in school and out of school depending on the circumstances and affluence of the school.

Added to this culture-teacher-textbook environment may be a library – ranging around the world from simple to complex, and varying both in size and contents from exclusively print to multimedia materials. Costs of these information environments for materials, information, and the various technologies to make them viable, include a human component known as the librarian. At first, the role of the librarian was to create a knowledge system though known storage and retrieval principles developed by inventive library professionals – Ranganathan of India and Dewey of the United States, to name two examples.

In the later part of the 20th century, the school library community has been working on a broader picture of the library or information system as it interfaces with students and teachers. Not content to continue only with storage and retrieval roles, school librarians have stepped into a collaborative partnership role for teachers in the creation of exciting learning experiences. They excel at using whatever resources and technologies are available to make a positive impact on teaching and learning. This interface and collaborative role change has been a difficult transition, not just for the librarian who had to adapt to a role shift, but also for students and teachers who also had to shift focus. Users now could expect not just storage and retrieval, but a dynamic learning environment.

In selected locations around the world, a few teachers and students are experiencing this collaborative information environment. In these educational communities, the information is plentiful, the staff of the library large, and the collaborative environment rich. But this model ebbs and flows based on the affluence of the community, the vision of educational leaders, and the competence of the librarian.

Numerous research studies show that the strong collaborative model of school libraries stimulates "achievement" or learner outcomes. Key factors in raising achievement include size of collection, size of professional and support staff, and amount of teacher-

librarian collaboration. (Lance and Loertscher, 2001) These factors or variables seem to work in concert particularly when comparing high achieving schools to low achieving schools.

Efforts to spread this collaborative school library model have received mixed results even in the United States from which the research emanates. Collaborative model information systems are expensive, require leadership, vision, support, and expertise – ingredients that may not be in abundant supply in an individual local jurisdiction. The results seem to be a patchwork quilt of success, not only in the United States, but also in Canada, the United Kingdom, Sweden, Australia, and New Zealand – countries with which the author is familiar. The building of collaborative information systems in schools has not paralleled electrification, the spread of communications technology, or global business systems because the impact has not been valued highly enough to be considered as essential. Where it is regarded, the investment has not been sufficient to come even close to its theoretical potential.

Enter the Internet. Everything changes, or at least, needs to be re-examined.

The purpose of this paper is to rethink the information environment of children, young adults, and teachers as high-tech becomes ubiquitous throughout the world. The information system which I will describe is very close to being operational in a few locations in North America and with some capital for development and refinement could serve as a model easily implemented almost anywhere.

The Expanding Knowledge Base.

In the eighteenth century, Dennis Diderot felt that the universe contained a finite amount of knowledge and that almost all of what could be known was known. Thus, he created an *Encyclopédie*, feeling that all knowledge could be captured and summarized in a single set of volumes. Melville Dewey also felt in the late 19th century that his classification system would go through only a few editions before it could classify the sum total of all knowledge.

Looking back from today's vantage point, we have seen an explosion of knowledge, and while encyclopedias are still a valuable asset, they summarize only the barest of essentials. To be sure, Stephen Hawking postulates: "Will we succeed in our quest for a complete unified theory that will govern the universe and everything that it contains? . . ." We may have already identified the Theory of Everything (ToE) as M-theory." (Hawking, 2001, p. 175) Hawking wrote his popular book: *A Brief History of Time* in 1988 and noted in the introduction of his latest work how much more is known in 2001 than in 1988. He and other scholars see much left to learn before a Diderot or M-theory sense of euphoria overtakes us.

A group of well-meaning educational and governmental leaders in the United State have been trying to solve the ever-expanding curriculum with a system known as standards-based education. Instead of allowing a rapidly expanding content model, they have opted to define a central core of knowledge that every young person should know and be able to apply. Standardized testing across the grade levels has been created to measure how well this core has been internalized. The spectacular progress expected, dictated, and pressure has not yet occurred according to the NAEP reports regularly issued by the U.S. Government. (NAEP, 2000) If we look across educational practice for the past 50 years, the current model is likely to be superceded in a fairly short period of time since the pressure of expanding knowledge quickly renders even core knowledge obsolete.

The rapidly expanding knowledge base plays havoc with libraries as well as educators, because the high cost of keeping pace is beyond many normal budgets, at least at the funding levels of the past and particularly during times of economic decline. It seems that every time the Hubble telescope is pointed in a new direction, entire library shelves are rendered hopelessly out-of-date. The quandary for every librarian has been weeding criteria: What percent of inaccuracy should I allow before the harm done by this book surpasses its benefit?

In the Age of the Internet

The Internet as an information environment for children and young adults has created a fascinating competitor to libraries of all types. Search engines such as Google are so easy and immediate that many young people, faced with a research assignment, just “google” their way through the Internet rather than struggle through the hoops of a more traditional library environment.

To be sure, the Internet is:

- Overwhelmingly large.
- Mostly irrelevant and largely unreliable.
- Full of advertising, pornography, and other entities designed to lure young people into becoming paying customers or in other unwholesome activities.
- Getting outdated as many sites age without funding or time for volunteers to update them.
- Becoming less and less “free” as corporate entities try to recover costs or make a profit.
- In some danger of collapsing as its size overwhelms capacity.

Yet in spite of these drawbacks, youth are attracted in such large percentages that library collections, even though superior in content, are ignored. Users gravitate to information systems and technology that suit their needs, whether or not those systems are superior. Handheld devices may rule in the marketplace, not because of screen size or quality of graphics, but because portability overwhelms the negative factors.

Librarians need to realize that to stay relevant, they must embrace the information needs of children and young people on their own terms, not those of well-meaning adults. Many school libraries are rarely accessible at the times when information needs are critical. They are down the hall, filled with classes already, closed in the evenings, and often their most valuable information resources, the reference collections, are chained to their shelves. Google, on the other hand, is always there as long as the connection is working. And in the age of wireless, it is ubiquitous as well as available 24 hours a day, seven days a week.

What sort of school library information system would young people be attracted to? What system would be so valuable and so convenient that students and their teachers would want to start there first before venturing forth into the information smog of the Internet?

The Library as the Digital Hub of the School

In the United States, many school administrators understand that when they give a speech about the library, they should refer to their library as “the hub of the school.” In the age of digital information systems, that phrase can be truer than ever before. I would propose that every school library in the world that is able, construct a portal/web page that constitutes the central hub of information essential to every student and teacher. This portal would be the

home page of every student's and teacher's computing device as it is turned on. The school library would be every student's and teacher's essential information system. To these users, "It all begins at the school library," since it is the gateway to the world. It is *the* place to start: *A safe and nurturing information environment*.

In the next few sections of this paper, three views of the total digital school library intranet are provided. Three major components are explored:

- The academic environment
- Career and personal space
- Personal space

The academic environment will receive the most attention. At the conclusion of this exploration, observations will be given concerning the transformation of these spaces into a knowledge-rich environment.

THE ACADEMIC ENVIRONMENT

A Safe, Nurturing Environment

The first essential element of an information environment that would truly nurture every student and teacher is a closed system with a firewall of protection from the outside world, an intranet rather than an Internet. For hundreds of years, libraries have built collections of materials, information, and technology selected for a particular group of users. It never contained everything, but it did contain the highest quality materials targeted at users in a specific community. It was as large as the librarian could influence the community to purchase.

School librarians have not sought to build libraries containing all that is known. Such collections would not be desirable in any elementary or secondary school. Even in the digital age, librarians would build a smaller (a relative term) system, yet it would be "enough," to challenge every learner.

The digital information system would also be a safe environment from a number of elements that have become so common on the Internet: advertising, pornography, hackers, and push elements from persons or groups trying to gain access to youth for a variety of nefarious reasons. Just as we might protect our homes or school grounds from harmful elements in the community, the digital information system would also be protected from destructive forces. Such a protective environment has nothing to do with the issue of intellectual freedom or with filtering as it is known currently. And this protection extends not just within the library walls, but into the classrooms of the school and into the homes of students and teachers who are accessing this school library intranet.

The intranet envisioned here is no different than many created for professionals in corporate and research environments around the world. Many organizations have intranets protected from the outside world. Within these systems, email and instant messaging can take place, but only within the internal environment. Students might have additional email and instant messaging as a part of independent accounts from home. Figure one shows this protected information environment or the walls of the digital school library.

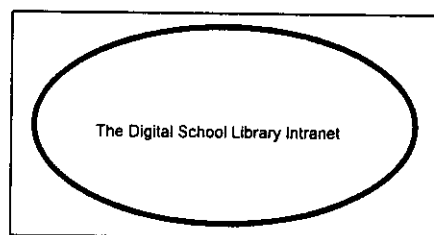


Fig. 1: The Digital School Library Intranet

Customization for every user.

Librarians are accustomed to building "one-size-fits-all" information systems. They build catalogs using search mechanisms and search terminology that all users, adult or child, sophisticated or novice must use to find materials successfully. A number of libraries targeted at children have subscribed to automation programs that provide simpler and more appealing interfaces. However, even with these specialized catalogs, the interface is still one-size-fits-all at the child level.

A much more optimal interface would allow each user to create and build their own view of the information space within the school library intranet. A child at a certain grade level might wish to view information targeted at their grade level, assignments from only their teachers, e-textbooks for their classes, plus access to information suited to personal interests. This interface could expand or contract within the intranet at the discretion of the user under the guidance of the librarian and the teacher.

Close to the beginning of the school year, students would enter the main school library intranet and after some exploration of that environment, would design their own home page within that space, gaining access codes/authority at that time which then could be used on whatever electronic device they were using either at home or within the school.

For example, students would identify teachers, courses, needed tools, areas of interest, topics for which they want to be notified regularly, languages spoken, cultural and religious preferences, level of ability; and they would set up email/instant messaging accounts inside the protected information space. At any time during the year, students, perhaps in consultation with teachers and librarians, could reset their parameters, or they might just choose to see the entire intranet.

The same features could be constructed by teachers who would want to be in contact only with their own students, their classes, their e-textbooks, and resources for their classes. If they were collaborating with teachers outside their own discipline, other spaces could be opened up temporarily as needed. Following a common pattern already known in the larger library world, these personalized information spaces might be termed "my school library" as shown in figure two.

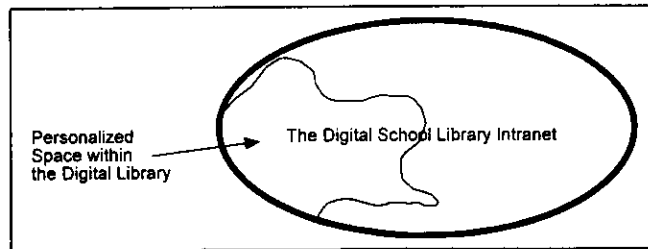


Fig. 2: Personalized Space Within the Digital Library

BUILDING THE DIGITAL CONTENTS OF THE ACADEMIC INFORMATION SPACE

An information-rich environment.

Building a digital information-rich environment for teachers and students draws upon long-known principles of selection: a solid match with the curriculum, appropriate difficulty level, authority, high quality, among others. Publishers and jobbers are still learning how to support the needs of young learners in the digital world and provide affordable resources.

Digital resources for school library collections might contain three levels within the intranet. These are the core collection, the curriculum collection, and the elastic collection.

The core collection. Similar to the reference collection of traditional libraries, the core collection contains materials meeting the longstanding Bradford distribution principal that 20% of the collection can usually account for 80% of the inquiries. Thus, encyclopedias, dictionaries, atlases, core databases, and captured web sites spanning common curricular topics would be selected. In the United States, school districts and even states have licensed many of these core works not only for the schools, but for every citizen within their state. By doing so, these core works cost much less per capita, and when carefully selected, can provide a rich starter collection available equitably across whole populations. Individual school librarians might create such a core collection, take advantage of core works created by larger entities for use by school students, or add to core collections as needed until the Bradford phenomenon appears to be operational. Figure three shows this concept.

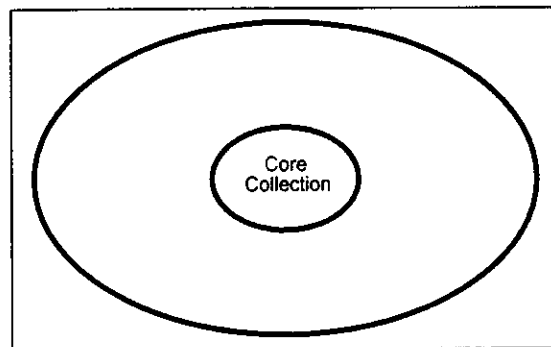


Fig. 3: The Core Collection

The curriculum collection. Using well-known collection development principles, a school librarian would then add resources to the core collection designed to serve a particular

curriculum. These might include e-textbooks, collections to support reading initiatives, science and social studies materials, original sources, graphical sources, and curricular information in a variety of languages and difficulty levels. From major projects, such as Access Pennsylvania done in the United States a number of years ago when school library catalogs were joined to form a single online catalog, we learned an important principle about school librarians. They choose collections matching their curriculums that are as different as they are alike across schools.

Some may presume that a school district might build a digital collection that would serve the needs of every elementary school. Not so. With professionals as “chief information officers” at the building level, digital collections would be as diverse and unique as required by the needs of a particular school’s curriculum, and student population as shown in figure four.

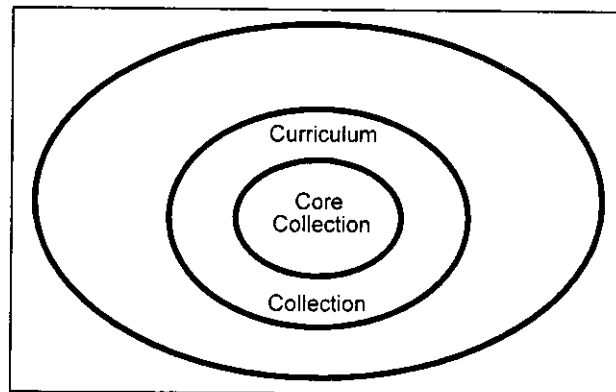


Fig. 4: The Curriculum Collection

The elastic collection. Information vendors often pitch their information databases to schools and libraries based on a subscription lasting for an entire school year. The idea of the elastic collection would be to open, on the basis of need, but on a short term basis, certain information channels to serve short-term information needs. For example, an advanced high school chemistry class might need access to *Chemical Abstracts* but could never afford to subscribe to such a sophisticated data repository for a year. The librarian might contract with the company to open that database for three hours at an appropriate time when the students and teachers were doing high-level research. Access would then be ended. For some companies, the librarian might buy a “phone card” in advance that would allow access to a variety of specialized databases based on the minutes used or queries made.

Such access to specialized resources would be termed “elastic” since the school library collection would vary in size from day to day depending on the requirements of teachers and the needs of students at any given moment. (see figure five) This concept follows the well-known principle that in the digital age, there is a great deal of difference between what a library “owns” as opposed to what it “provides access to.”

The elastic concept would work in the world of fiction as easily as in the advanced database arena. For example, as *Harry Potter* books are released, the school librarian might lease 300 digital copies for two weeks, dropping to ten copies thereafter. Or, one could imagine that as holidays are observed or popular topics become fads, the digital collection would swell or contract as required by the users. Students and teachers might indeed control the size of the collection at any given moment as they clicked on the *Harry Potter* book collection. Instead of contracting for a certain number of copies, the users would govern the

number of copies required as they clicked their way through the system. A teacher having all students read the same novel would “order” the number of e-copies needed for a short period of time.

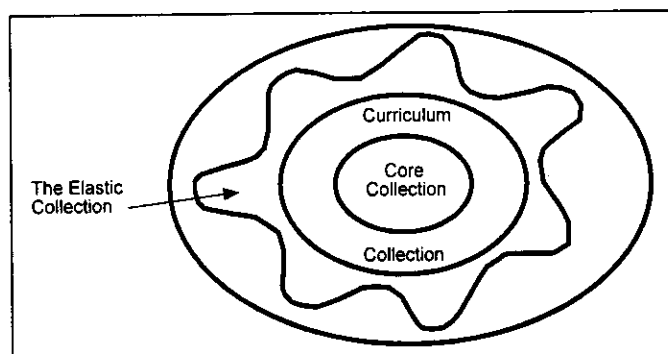


Fig. 5: The Elastic Collection

The Internet and the Intranet

No matter how large the school library intranet is, students and teachers can benefit greatly from access to the Internet. In the view posited here, access to the Internet would be a feature that each student would have to “turn on” as their own customized web page was created. However, rather than lodge the responsibility of Internet access on to the shoulders of the school librarian or the teacher, the parent would have full control.

Various levels of access to the Internet might be authorized by a parent or caregiver depending on the technology available:

Level one Internet access. Level one access of “white-listed sites” (those URLs that could be accessed from the intranet but not further) would consist of selected web sites using normal library selection criteria for authority, usefulness, and appropriateness. At least one commercial vendor already has 180,000 carefully selected websites that would be useful to children and young adults. This core collection can be “leased” by the school librarian and it is updated/maintained daily by the commercial vendor. Such a collection might be a part of the core collection described earlier. Or, the librarian might lease selected chunks of the whole collection offered either for the intranet or for level one access. Other desirable websites of a curricular nature would be added by the school librarian (chief information officer) as a part of the curriculum collection above. And as part of changing curricular needs, the chief information officer could open access to specialized web sites for a few hours as part of a specialized study (controversial sites, very sophisticated sites, or other sites where temporary rather than regular access would be desirable). In addition, fee sites would be a part of the elastic Internet collection as described earlier. Parents would sign up for this level of access and would be assured that selection criteria would have been applied to all of the sites within this collection. If there were sites that parents would rather not have their children access, these sites could be eliminated for the level one access collection that could be seen by an individual student. In the *Harry Potter* example above, some parents might not wish to have these titles accessible to their children and that would be their choice.

Level two Internet access. Level two might be subdivided into a number of various levels depending on the growth and sophistication of the technology available. One might

think of turning on “blocks” of Internet sites, all of which would be screened or selected by a librarian or teacher, areas of the full Internet, but not the entire Internet; larger than level one, not everything. Parents would need to understand the choices this level of access would provide to their children or teens and would have the power to open or close this access at will.

Level three Internet access. Parents might feel that their child or teenager is responsible enough and information literate enough to tackle the entire Internet as a part of their school experience. In this case, the parent could turn on full access or at least full “filtered” access as deemed relevant to their own child’s needs. Again the parent would have to understand fully the responsibilities connected to the online switch and could control access, opening and closing it as appropriate.

The picture of the whole

Figure six illustrates the central components of the school library digital collection as a safe, smaller (a relative term), and high quality information system. It emanates from the school library into every learning space in the school and into the homes or locations where learners are served. It would spread out to home schoolers, those who for any reason could not physically come to school, and would reach out to include distant sites or “sister schools” as partnering occurs locally, national, or internationally. Yet it is behind a fire wall.

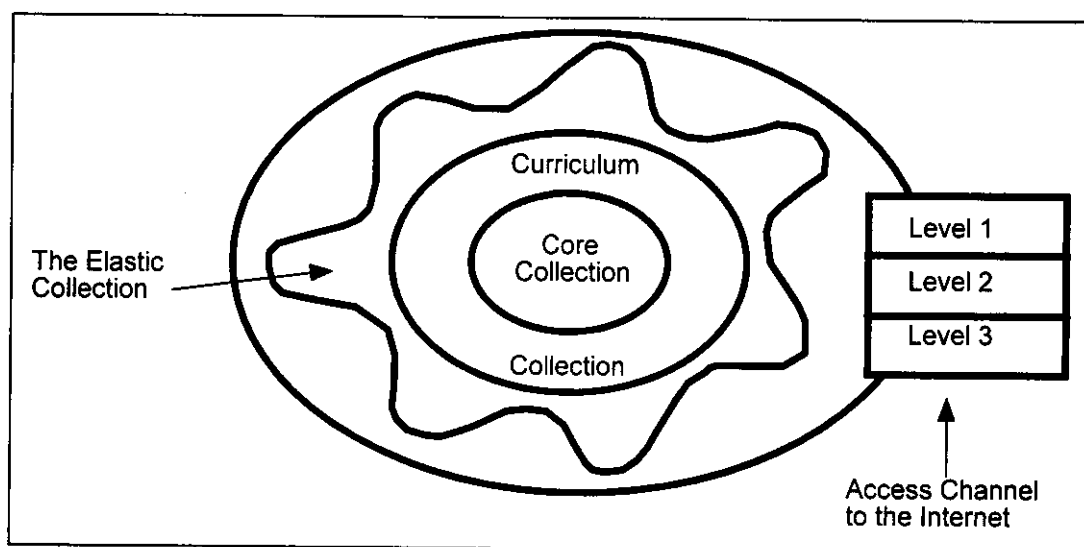


Fig. 6: The Digital School Library and the Internet

Personalized Features of the Academic Space

Within the intranet, every student and teacher should be provided with various other information technologies designed to maximize a learner’s opportunities and potential. The current state of technology allows a description of three features, but others are likely to develop. Those described here include tools, push technology, and pull technology.

Tools. Young people and their teachers will need the tools to operate within digital space that will boost their potential to learn and provide both sophistication and efficiency in support of the learning process. Current tools that come immediately to mind include:

- An office suite (word processor, database, spreadsheet including mentoring software such as spelling checks, grammar checks, wizards, or other guidance software such as stimulation toward critical or creative thinking).
- Graphics packages (drawing, graphic art software, concept mapping programs, among others)
- Web construction editors.
- Presentation software (tools such as PowerPoint or Photoshop).
- Communication tools (allowing voice and visual contact with other learners or experts and allowing students and teachers to transmit projects, messages, graphics, or conduct planning).
- Translation packages (both language translation and cross-platform translation or conversion).
- Assistive technology (for blind, disabled or other physical challenges).
- Communication tools (certainly within the educational environment and beyond as parents and protective technologies allow).
- Course/classroom software (programs such as "Web CT" or "Blackboard" where courses are conducted).
- Remote sensing devices (allowing collection of data, experimentation, or experiencing whether onsite or from afar).
- Tutorials for using any of the system tools or their upgrades.
- Management tools for teachers such as grade books and attendance software.

Whether these tools will be resident on the school library server, on the client's device, or a combination of both will depend on the sophistication of technology, band width, and a host of other technological issues known now or in the future. Many institutions already license software packages for entire work groups, an entire student body, or small groups with specialized needs. Thus the pattern for this work environment is already in place and will become more and more flexible as schools exhibit the need to equip each individual with the tools required to flourish. These work tools will need to be updated on a regular basis as innovation and technology advance. Software operation will need to be seamless across the computing devices in the school, personal technologies and home-based or mobile technologies.

Push technology. Both learners and teachers can expect software on the intranet that will allow them to become aware of things that will benefit them. Current push technologies might include:

- Automatic notification software – including calendaring, notification of assignments; alerting messages about new software available; messages alerting the user to new articles on topics of personal interest or research; opportunities available for scholarships, learning opportunities; student activities and service projects; and a whole host of other messages to grow and develop as a responsible member of the learning community. For teachers, this technology would provide notices of new professional articles or research reports of interest; alerts concerning policy changes or opportunities for professional development to list just a few.
- Messages/news from administrators, librarians, teachers, parents. For both students and teachers, messages of upcoming events, announcements, reminders, opportunities are designed to help the individual plan and work successfully within the educational environment.

Pull technology. Pull technologies include the various search engines and meta-search engines to allow the user to locate desired information within the information system. Over the past two decades, search engines have become better and better, and there is reason to believe they will become smarter and more adaptable to a particular individual's needs. Progress is being made toward a single rather than multiple search engines that will search a wide variety of information databases and sites rather than using multiple engines with a plethora of icons cluttering the computer desktop. A single meta-search engine might allow us to search first within the intranet and as the parent allows, then outside that environment in the world of the Internet. At the present, the emphasis on building search engines is on *precision*, that is, to provide a selected few sources that meet a need exactly. Dr. David Barr, however, reminds us that learners who are becoming mini-experts in a topic or teachers who want to build comprehensive knowledge, require *recall* as well (where every relevant document is retrieved) (Barr, 2002, p. 21-26).

CAREER AND PROFESSIONAL SPACE

Both within the intranet world of the digital school library and outside its walls in an independent space, each student and teacher might construct a second space devoted to career interests that eventually expand into a professional or vocational information space. This nurturing information environment would support hopes and dreams, plans, and the building of expertise. As a career, a profession or trade is embraced, the information space evolves to support and extend.

For example, a youth headed toward medicine would be able to explore educational opportunities, find help in preparing for college, expect support while in college, and build a career information-rich environment as a physician. For a teacher, this space would provide the informational foundation or "professional library" that would help that teacher stay current, grow, participate in professional development, and grow in other ways to increase their personal expertise. In a number of countries, the adult years are not focused on a single job but seem to be changing at varying intervals. The information space would be at the command of its user. One thinks of an information cone spiraling outward as the child grows and develops toward adult life. And as an adult, the same space nurtures a specific career or helps that adult grow or change to a new career. To reiterate, this space contains:

- Expert topics I am pursuing.
- Career exploration at any stage of life.
- Educational opportunities throughout life.
- Professional or trade group support.

THE PERSONAL INFORMATION SPACE

Outside the digital school library intranet, every student and teacher would construct their own personal information space. This would be in addition to the academic and career space outlined above.

Building a personal space

Young people already connected to the Internet quickly build their own personal information space whether or not they change the look or feel of their home page. As their experience grows, they know exactly how and where to click to get to pieces and parts of their personal space. Customization is already well-known such as My Yahoo. Jakob Nielsen reported recently a number of problems connected with personalizing websites and building

for the child. (Nielsen, 2002) Customization of interfaces is being developed at the University of Maryland and will no doubt develop rapidly as school librarians in league with students develop ideas for viable interfaces. Young people already know what they want in their personal space:

Games. Number one. Numero Uno. From simple to elaborate, the youthful crowd knows what they want, what devices are needed, and how much they cost.

Communication. Young people want to communicate with friends, family, and the school community in that order. Telephones, e-mail, chats and instant messaging currently are center stage in this arena, and this will grow as telephones and personal data devices merge into a single device. Teachers, librarians, and student work groups already benefiting from instant and ubiquitous communication technology have not always learned how to channel this communications technology well or how to focus an individual's attention. Perhaps a set of function switches could be developed to turn on or off selected information spaces at given times.

Family space. As digital information expands, so do opportunities to communicate and function in ways to enhance family ties and nurturing, particularly in mobile, extended, and divided families common in some cultures.

Private space. Many young people have special needs including mental health, physical health, spiritual health and other personal needs that a more private space would satisfy, free from prying eyes and outside forces designed to attract or pull in unwanted ways.

Advantages of the Digital School Library Intranet

Numerous advantages drive the construction of a digital school library, at least one that is ubiquitous, reliable, and available 24/7/365 (twenty four hours a day, seven days a week, and 365 days a year). The following may not be a complete list:

- The digital school library becomes the **primary information system** – the true hub of the school. Finally, on every digital device, computer screen, or instructional space at school or at home, the school library has an essential place as “the place where I begin.”
- Digital libraries are available for students who are being **home schooled** yet who need access to the same information-rich environment that government supporters have provided for those attending public schools.
- If a student for some reason moves to a distant location for a season, the digital school library is **available anywhere and at any time**. It might also provide **distance educational opportunities** for young people with special academic needs not available at the local school.
- By utilizing the personalized space that every user can create, the digital school library can provide many more **cultural and religious** materials that can be accessed or ignored under user control.
- The digital library provides for **individual differences** in ways print libraries could not do very well. Using the personalized space construction tools, the library can serve:
 - Age ranges
 - Ability levels
 - Personal preferences
 - Languages

- Sophistication levels
- **Equity** issues are served very well by the digital school library and are particularly effective with funding agencies trying to serve every child.
- **Access** to information in the digital world will not depend on access to a single physical location with the traditional organizational restrictions to when, where, and at what time information resources can be used. This concept is discussed further in the section of this article dealing with issues.
- Digital school libraries can be “**device enabled.**” The information will be compatible with a wide range of devices whether they be computers, hand-held devices, or other technical devices now being developed.
- The technology is now available to provide an information system for young people including **individualized customization.** The “my space” concept is already growing rapidly in many sectors of business and industry.
- Analysis of the digital possibilities allow us to think in terms of a “**smaller,**” but **high quality** information environment. Here, searches come up with both reasonable and/or rich results as queries are made.
- The digital school library intranet vs. Internet concept **transfers responsibility** of information access to the full Internet to parents/care givers where it belongs.
- **Safe information environments** are created away from and protected from the rush-hour traffic on the Internet highway. *Predators of all types are locked out.*
- Digital school libraries still embrace the principles of **intellectual freedom** since all materials within the library are carefully selected under the guidance of selection policies as has been the case for a century. The tug-of-war of ideas is still alive and well.
- Librarians will continue to build a **selected collection** utilizing their time-honored expertise. They recognize the needed core materials, materials that will support specific curricular agendas, and they will know which resources belong in the elastic collection for specialized uses.

Issues Related the Digital School Library

Numerous issues surround the creation of a digital school library. Some have already arisen. Others await more experience, and the development of software and hardware.

Access

The major issue of the digital school library is really identical to the print school library: access. Who can gain access, when, for what periods of time, through what devices, at what speed, and from what locations? It will not take a great deal of effort or networking to surpass the access to the print library that is currently visited frequently by a few, occasionally by many, and never by more users than we care to admit. In the United States, access to computers has risen very rapidly in the past ten years. In nations where wireless technologies are ubiquitous, hand held devices are becoming extremely common so that access issues are decreasing in importance.

The concept of enough

How much information and technology is “enough?” Two factors have limited the size of information space in the print world: what the community would afford, and the limits placed upon the user by the librarian. Governments: national, regional, and local, the world over, claiming poverty, have generally under-funded information systems for young people.

When included in full organizational budgets, expenditures for school libraries have often been low and are given low priority. That is because in any school, salaries, buildings, and maintenance often approach 90% of any funds available so that all services fight over the small percentage left. Of that 10% or so, an adequately funded library will require the largest chunk next to the textbook budget. No wonder the crows surround the body.

In their own way, librarians have also severely restricted access to library materials claiming that some users must be denied access because they are irresponsible. Most librarians restrict access to print reference and periodical collections because of the need to have those materials available during open hours. Still others restrict circulation to one or two items in a given period. Such restrictions have the organization's interest at heart rather than the needs of the users.

Even though library standards in various countries have advocated the idea that "bigger collections are better," in-house restrictions have severely tested this concept. This author knows no research testing "how much is too much."

In the digital world, we already know from experience rather than from research that access to the full Internet produces instant information overload and data smog. So, how much is "enough?" In the proposed high quality, yet safe school library intranet, that concept may be tested not by professionals, but as a deduction based on user control over their own information space. As users create their own portals within our portals, we will be able to study the information spaces they create for themselves to learn better what to regularly stock in the digital collection, what to provide from the elastic collection, and the response of parents to various size channel settings to the Internet. And they should be able to communicate with us about the boundaries, barriers, and problems encountered in the library space. If we find that they are seeking nurturing elsewhere, we will want to re-adjust our boundaries until we find an optimal and liberating size rather than a confining space.

We will also find those of our users who don't care anything about "a rich information space." They see no relevance in becoming educated or in growing and developing in any intellectual way because they don't see a payback. This may be true about their academic information space, but their personal space containing recreational materials may be huge. For example, Apple Computer makes the iPod – a 5 gigabyte cigarette-sized solid drive on which 2,000 songs may be recorded. Early users filled that space up with MP3 recordings in a few days and clamored for more. A 20 gigabyte version is now available. At what point between 2,000 and 8,000 songs will the system become too much for its owner? Or, will the appetite be satisfied at 100,000 songs? Or at home, how large are video libraries growing? A study of behavior in the popular culture may give us clues about "enough" in academic information space. One wonders how many science fiction or fantasy e-books a young person might want to store on their personal digital device. And, if that is possible, how many e-books, articles, dig site updates, and other information about dinosaurs would they want to "own?" Already we know how comforting ownership feels.

The redesign of workspace

Much needs to be done in the design of workspace for children and young people. In the tools section discussed above, we envision surrounding each student with the tools needed to be an efficient learner. Numerous companies have developed child-friendly versions of tools originally designed for adults. Missing, however, at the moment at least, is a workspace

designed for a child where both process and content learning can be developed and delivered to teachers.

One thinks of the need for students to question, find, consume, create, present, and reflect using a tool which would be a record of learning. For example, if the teacher sees only the research paper with the bibliography, the teacher can often not track the sources used by the student, particularly when those are urls that are often unavailable shortly after they are cited.

Imagine a workspace where both the process and the product can be examined. For example, the central part of the screen is the product, the research paper. It might be a multimedia product, but for simplicity sake, let us assume that it is a report or research paper. Surrounding the product space on the screen is the process space that can be consulted with simple clicks by the reader of the paper. Clicks might include the process log, concept maps, full-text resources used in the paper's construction, captured web sites, notes from sources used, logs of research queries, rubrics, and any other useful record of the path matching the product being evaluated.

More comprehensive and easy-to-use software designed by and for youth would lessen greatly the "cut and clip" methodology used so widely. Teachers would be able to assess not only what had been learned, but how that content had been developed.

Breaking the googling habit

While difficult to break the googling habit for students who have searching patterns well established, the good thing about schools is the turnover each year. We can groom our digital library and start again with a new group. First, the digital library must be designed cleverly to attract and nurture a potential student. Then we press our advantage. We might use the strategy of the German corporation Dymler-Chrysler that took a bold step forward in the design of the PT Cruiser automobile. Their automobile is probably no more reliable or superior mechanically from any other, but the unique design caught instant attention and demand spiraled. In the library world we can do better. We can have both a unique design and a much-superior information space. It should not be terribly difficult to grab the attention of our users. Perhaps they can help. Someone has said that the currency of the 21st century is attention.

Working with the commercial world: fair use vs. copyright

Librarians have always been concerned about creating a balance between copyright issues and fair use in the educational world. Given the current confusion within the music world, educational publishers have been reticent to open electronic channels lest intellectual property and publishing revenues be ravished by wholesale copying.

By creating an intranet as the school library, the long-standing protection of intellectual property remains intact. School libraries have always purchased the periodicals, books, and multimedia for their collections or obtained licenses for such things as television programs having time limits on their storage longevity. A printed book is purchased once and made available to many many users over time as long as that book is retained in the collection. We expect the same to be true in the digital school library. Let us not forget. Some companies are providing e-books with a certain number of chairs. An e-book with one chair limits the use of that book to one user at a time but includes unlimited uses.

What is different is the idea of ownership vs. "access to." Subscribing to a periodical in pre-digital days meant that the information would be available to users of the library as long as the librarian cared to archive the periodical run and that usage was unlimited to the patrons of the library. Such agreements in the licensing world are critical, since if a temporary dip in budgets were to occur, the library would still have previous runs of periodical data rather than none at all. For example, if I purchased access to 500 copies of an e-text, that access right should continue for as long as I would care to archive it, or I could keep such e-texts continuously updated through a system of licensing.

In the digital world, publishers and librarians will have to learn how to work with each other to negotiate ownership vs. access rights. The notion that all access by a student to the information pool would be on a metered system might be very attractive to the publishing world but unacceptable to the library and education world who would be held hostage by those who controlled access to content. On the other hand, by creating an intranet, publishers could license materials to a small group of users without the fear of losing control across schools.

Several methods for purchase, licensing, "try before you buy," or free access are already being tested in the digital market. Librarians will continue to vote for the systems they prefer with the money they spend. School librarians will continue to champion the copyright laws but will also insist on the fair-use needs of their students.

Will books survive?

The user will decide. They have already decided in the world of periodicals preferring online, full-text, and downloadable in a few seconds to searching magazine rooms when and if they could get to the library. The same will be true for books. When and if e-books become widely available on ubiquitous personal devices, our users will vote with their usage patterns. We need not make the decision for them. Users already killed 16mm films even though that was a superior format to videotape. Now videotape is under attack. Filmstrips are dead. So are single concept 8mm film loops. No one is crying.

Budgets and the concept of the *information utility*

Digital libraries cost more. True, the cost per information unit per person may be less, but the digital library easily surpasses the size of the largest school library and so costs including the reliable networks to maintain them are higher than their paper counterparts. That's the way it is. Face it librarians, administrators, boards, and taxpayers!

We seem to be emerging into an information utility concept. There are costs associated with school busses, heat, lights, and now information. Don't pay the gasoline bill – cancel school. Don't pay the information utility bill, cancel school. Interestingly enough, my calculations show that the cost per child for e-texts and all digital library materials would actually be less per month than the cable or satellite television access bill in the home. At U.S. current rates, most families are spending somewhere between \$35-50 per month for television – a handsome sum if used to build a digital school library.

Commercial competition

Publishers of all types have competed for library budgets in the past. They will in the future. The librarian creating the digital library will vote with their money for the highest quality information at the most reasonable prices. No differences here. If some commercial

providers try to capture a monopoly, upstart digital publishers will arise to challenge them as long as the free market system is in place.

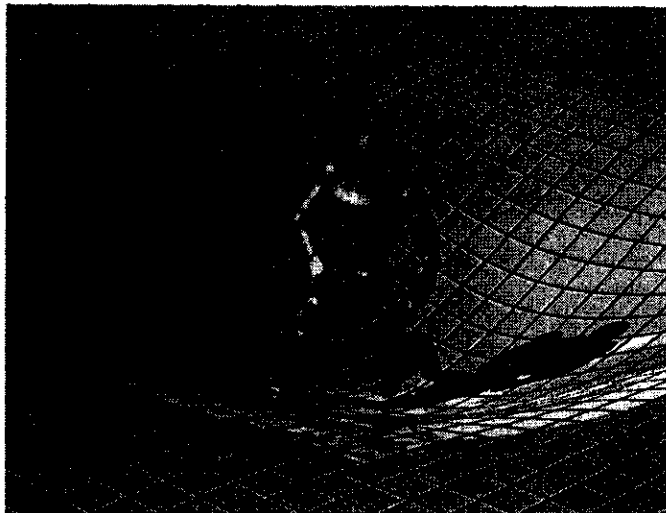
Staffing

Some of the components of the digital school library can be funded and shaped at district, regional, state, and federal levels or their counterparts in various countries of the world. We have some temptation to build one system and serve it out to everyone. While theoretically this could be done, there are a number of important reasons why this will be insufficient. After an extensive review of the research literature on information literacy, Loertscher and Woolls concluded that in the world as we know it, the human interface is a vital component of the information system. (Loertscher and Woolls, 2002, p. 21)

Unless computer systems and delivery mechanisms become extremely intelligent, just linking young people in and turning it on will be insufficient. If and when that scenario happens, we will learn what is best. Meanwhile, this generation needs full-time professional, technical, and paraprofessional assistance to transform the tools and technologies now known into learning.

The Rise of the Knowledge-Rich Environment and A Final Prediction

We have spent a fair amount of space considering the components of the information infrastructure, concentrating for the most part on its content and its structure. Figure seven shows the young person cradled and surrounded by a nurturing information environment.



Such an information-rich and technology-rich environment could still not constitute a knowledge-rich environment if it remains just a tool with potential or a system bypassed by the users for whom it was created.

A knowledge-rich environment suggests the idea of transformation; a space in which data, information, tools, and technology are changed from tools into an active and dynamic learning laboratory where knowledge is born, nurtured, captured, and shared as it operates dynamically.

How might such a dynamic learning environment be stimulated? We might already have discovered the key elements in the work of Lance and others who have studied the connection between school libraries and achievement. (Lance and Loertscher, 2001)

Collaborative planning and the digital school library

Collaborative planning, the integration of library and learning experience through teacher and librarian collaborative planning has long been touted as a key element in library transformation. Urged on by many theorists in the field, many school librarians have experimented over the last 20 years with this outward reach concept. To be sure, they have been in the minority for a number of reasons, mostly because of the road blocks of fixed scheduling of the library in the elementary school. But at all levels, it is evident in the experience of the author after many conversations in almost every state of the United States and in other countries, that the librarians who have discovered the power of collaboration build quite a different world of learning and knowledge construction than their storage and retrieval professional counterparts. Hints of this effectiveness are becoming clearer in the Lance research and in a number of other studies that have included collaboration as a variable.

The role of information literacy

Likewise, school library theorists such as Eisenburg, Stripling, Kuhlthau and others have urged the school library community to insert in the mix of learning activities the introduction of information literacy instruction. Traditionally, this teaching was done as a course taught in "library class" over the school year or in a separate mini-course. Theorists, however have encouraged a different pattern where that instruction is integrated into learning experiences driven by whatever information task needed to master content learning at any given time. By inserting process learning / inquiry / information literacy into the learning activity, librarians discover that learners use information literacy skills to introduce efficiency into the mastery of content. For those young learners who experience the "aha," they become "power learners" defined as a person who is in command of their own learning. Librarians who become diagnosticians using tools such as those created by Koechlin and Zwaan (Koechlin and Zwaan, 2001) discover that they do not have to teach every child the same skills at the same dosage level to stimulate a quite different learning environment.

The responsibilities of the user

School library theorists of late have realized that providing the tools and the nurturing is not enough to see learners transform themselves from mere students into power learners. Mel Levine, a respected learning expert in the United States, one of many new thinkers and brain researchers, calls our attention to the responsibilities of the learner to participate actively in a high-quality teaching and information-rich environment. Levine uses a "concentration cockpit" technique with learners who are experiencing trouble in school. He sees learners imagining themselves as pilots of an aircraft with instrumentation in front of their eyes giving themselves feedback about their behavior, learning, and success in the learning community.

These learner pilots monitor three major systems to take off, fly, and land successfully (Levine, 2002, p. 279)

- Process controls (intake)
 - Mind activity control
 - Want and excitement control
 - Concentration depth control
 - Concentration time control

- Important intake control
- Mental energy controls
 - Alertness control
 - Consistency control
 - Mental effort control
 - Sleep control
- Production controls (output)
 - Preview control
 - Speed control
 - Past experience control
 - Possible choices control
 - Monitoring control

By studying carefully the ideas of Levine, and others, librarians can understand how the learner can be taught to and adjust to an information-rich environment. They can and must transform themselves into power learners.

Small world networks

Mark Buchanan in a recent book entitled *Nexus: Small World and the Groundbreaking Science of Networks* introduces us to the ideas of what happens when an effective librarian uses powerful information-rich networks, collaborating with the teacher, teaching integrated information literacy, and encouraging learner controls. To appreciate the phenomenon, the reader is encouraged to study Buchanan's synthesis from social, neural, information, financial, and even, disease perspectives. Librarians who are constructing information-rich networks layered with collaborative planning, information literacy skills and learner controls may be constructing an environment pictured in figure eight. By adding to this network a few random connections such as cross-disciplinary collaboration as pictured in figure nine actually build and experience a small world network phenomenon or "learning community," or "knowledge-rich environment." It is a phenomenon worthy not only of analysis, but also for research. Such an investigation of excellence, that is, the study of library programs in schools where the knowledge-rich environment has arisen, might give very rich clues to others who are trying to build such systems.

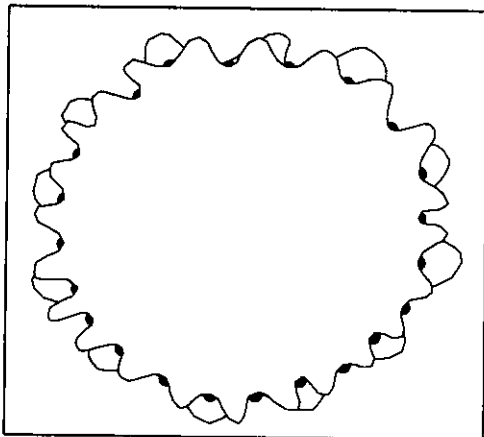


Fig. 8: Common Networks

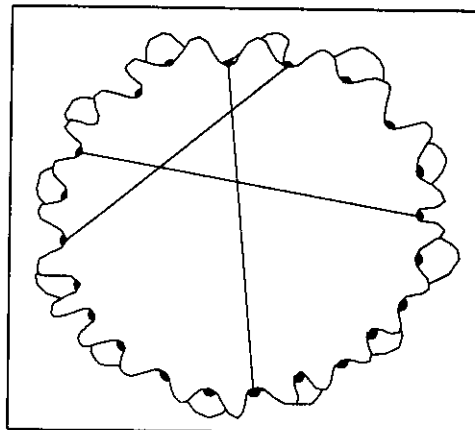


Fig. 9: Small World Networks

A final prediction

The technology will soon be available to create dynamic and three-dimensional virtual spaces within school library information-rich and technology-rich environments. In these environments, there can be numerous views of the information work space of the digital school library. Think of a spiral staircase where the central support column is the digital school library with individualized views for the librarian, teacher, student, administrator, and parent. Think of this work space as a dynamic record of the collaboratively built learning experiences between librarians and teachers. A space where the foundational information web supports and nurtures the learner as pictured in figure ten. The understanding of small world networks stimulated by information systems, collaborative planning, information literacy, and learner controls may prove to be the elusive mixture we have been seeking for some time. It is a notion worth pursuing to build a knowledge-rich environment for youth.

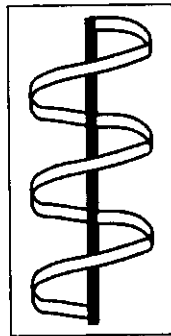


Fig. 10: The Digital Library Media Center as the Hub of the School

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The Best Way is to Ask

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Abstract

This workshop is designed to help school librarians build a case to convince others of the value of the school library in the education of students and the teaching strategies for teachers. Action research models will be presented including evaluation techniques to measure outcomes. Finally suggestions are made to turn the school librarian into an effective presenter so that audiences respond in a positive way to requests.

The time we spend together at this workshop is to help you decide what you need and how to prepare to ask for it. We're going to share successes and learn about new, methods to assess needs and identify and report accomplishments using action research. We're going to look at the downside just so you won't think I don't appreciate there is one, but we're going to move the downside to an upside by choosing the best way to ask, the public relations aspect of this all. Throughout this process, we will be sharing both questions and our best answers to those questions. What questions do you have?

Here are some you can help me with.

- Why don't we have more school librarians attending IASL?
- Who funds your professional development including conference attendance?
- When did you last get an increase in your book budget?
- Why do you have no library assistant?
- Why don't you have what you need?

(Handout)

During this workshop, we're going to look at why we don't ask so that we can change into people who are willing to ask. We're going to help each other understand what we should be asking. We're going to help each other understand why these things are important. We're going to discuss the right person to ask. Have we really been asking the right persons? When to ask and how to ask are equally important for us to discuss. Finally we are going to talk about what to do if at first you don't succeed.

Children learn early on how to ask their parents. They seldom hesitate, and they expect success. In many countries, the illusion of a jolly someone to bring gifts is a regular part of their lives. In the U.S. it is Santa Claus and lately, the Easter Bunny as well as all that candy they get going trick or treating at Halloween. Who do your children expect to bring presents?

Children always know what they need. It may be things they see on television, but it's usually what they hear from their friends or see in stores. They have found out that their best way to get what they want is to ask, and they rather expect their wishes to be granted. They have trained us well to respond affirmatively to their requests. By their calculations, they make an offer we can't resist.

To turn this to the school librarian, how do you learn what you need? Where is your "television promotion," how do you learn what your friends have, and what do you see in your stores? Let's think about television, friends, and the store.

You are attending this conference. That's very like a "television promotion" because you will see things you want as you attend sessions. You will communicate with your friends and find out what you need based upon what they say is successful in their school libraries. The exhibits here become your store to see things you want to buy. If we accept the premise that this conference does this, let's see how we learned about the conference, what made you decide to come this year? Do you have others in schools around you who aren't here, and why not?

Time for discussion

What are the excuses we often hear about why others don't get to this conference or other conference opportunities? Examples:

Can't get time off (means won't take "vacation")

Can't get time off with pay or they don't pay my way (means I don't think it important enough to invest any money myself.

The administrators/headmasters/ won't allow this. ...

How many of you have ever thought to ask your administrator to come to IASL – and why not? In my years at Pittsburgh, I encouraged students to come to attend Pennsylvania School Librarians Association because it was always valuable. It was a good place to take an administrator so they could meet good school librarians and hear about best practice. Would it be worthwhile for the administrator to come to IASL? Why not invite your administrator to help you present a program. This way you will get them to attend?

Your administrators need to come to the store so they will be aware of the costs of things. It's why you don't get a regular increase in your materials budget? Or when did your not getting an increase really become a decrease because of inflation? They can't imagine how much things really cost unless you can show them. When administrators visit the store, you will be surprised at their suggestions when you are back at school. They will understand why you are asking for those items and why the cost is that amount of money.

This is only one of many requests that we never ask? Why not?

Discussion here.

Why We Don't Ask (A Generic Approach)

Many of us take pride in not asking. Many of us who work in school libraries try to provide opportunities for teachers to be better able to teach and for students to be better able to learn, and we do so in the context of limited funding. We sometimes take great satisfaction

in how well we continue to offer services in the face of adversity when, in fact, it is accepting the situation rather than treating it as a challenge to do better. Making budgets stretch, finding substitutes for more expensive items, learning how to “make do” allows us to feel pride that we can offer more for less, to keep our level of service high within the slender allowances we are given.

Admirable? Maybe yes, maybe no. Who is being cheated in this picture? Good school libraries and well-prepared staff members who manage good collections of resources make a difference in the lives of teachers and students. Research shows this over and over and over. To accept a poor situation without letting others know what should be happening is giving up without a fight and the loss of the battle is a critical loss to your students teachers.

What are we doing when we don't fight for better collections, more training, when we accept, with only minor flinching, the status quo? How will anyone learn just how important the school library is to the teaching of teachers and the learning of students if we never tell?

Why don't we ask? Do you have any suggestions? Let's make a list so we can see how to overcome these?

Discussion here.

Some possible reasons:

We don't ask because we are new to the position (I haven't been here long enough.) or so long in the position that we don't notice how bad things are anymore. We accept the status quo.

Sometimes new is better because if you are new you can just expect it and it becomes embarrassing to Harry or Mary that they haven't been wise enough to provide it before. You may even act as if your predecessor was too kind to point out their lack of knowledge about this necessity.

We never have enough money to go around or funding is seriously cut back this year. (Myth or truth, it makes a good excuse!) Do you honestly believe that the need for new of anything, even stoves for the family living instruction in how to cook, are more important than information resources for students to learn how to think?

Money is always available for the necessities. Look at the school's budget and find where the item you want fits. You just need to point out why what you are asking is a necessity

Sometimes we don't ask because we don't want to be told, “No.” Some suggestions here will help you understand that to be told, “No.” only means a different, more exciting approach the next time. Hopefully after today, you will be able to build a case where it becomes impossible to say, “No.” We aren't going to be dissuaded by a “no.” It only gives an opportunity to devise a new strategy.

Sometimes we don't ask because we think someone else is taking over anyway. We feel threatened by the advent of technology, with the hiring of technicians and discussions of how everything is now available on the Internet when that's what makes us even more important – but more about that later.

Why don't you have a library clerk – your own teacher's assistant? It sometimes relates to the prep period assignment – you're becoming *defacto*, a teacher's aid!

Having clerical help is the best means to provide that necessary time to collaborate with teachers. This is a key to improving teaching and learning.

Sometimes we don't ask because we don't believe in it anyway. Or, because we don't think there is a Santa Claus. Or we are so worried about what we think is our image. You must start with a belief in what is being asked. If you don't think it is worth having or doing, why will anyone else. You need to know that you are the most important teacher in your school because you reach all the teachers, all the students, and you should be working with all areas of the curriculum. What does it take for you to become committed to something new, some change, some better way to approach a task?

- (1) Someone once told me it was good for you
- (2) I read about it once and it seemed an interesting idea at the time
- (3) It would be nice if
- (4) It would be nice
- (5) It would help
- (6) I'll do it if the principal says I must
- (7) Some of the teachers think it is a good idea
- (8) It's been successful in another school in the state
- (9) It's been successful in another school in the district
- (10) It is essential

Do we hesitate to ask because to be granted our wish may mean we must change something we have been doing and we treasure that way? Have we do you accept change? You will need to consider not only how you will adapt to change, you must also consider how you are going to get your teachers to change.

What are you asking for? Do you know?

Having considered why we don't ask, let's move to deciding what we should be asking. Do we really have our needs identified? Are our needs in priority order, or do we just open up in the fall and close in the early summer dusting off our hands and not thinking about the next fall? Have you prepared a strategic long-range plan for information services in your school? While we won't discuss this at length, your plan includes your attending conferences to learn more, and it includes budgeting for your principal to attend your conference? What you discover as you analyze your needs will become an integral part of your strategic plan. It makes the needs process even more important.

You ask for funding to attend conferences where you will update and improve your skills, to choose materials including the best databases for your students. You come home with a buying list of "can't miss" selections, you are on the way. It's where you say, and I am parroting your children – "EVERYONE ELSE HAS IT." You learn about the activities of clerical assistance for the library so you can collaborate.

Conferences are where you learn what's going on in other parts of the county, state, country, world especially those parts where funding is about the level of yours, but where they seem to spend it more wisely on school library staff, materials and services. This sort of

comparative analysis is more likely to convince your principal/superintendent than anything else. In the U.S., we have a ploy to compare ourselves with others like us in size and wealth but who have more than we do. Then we tell the administrator that we need to be like them, that we want to "keep up with the Joneses." It works, and it works better if you can bring persons of influence with you to meetings and conferences.

How else do you determine what you need? You may ask your teachers and your students and their parents. What are your students and teachers requesting? What do parents go looking for in the evening to help their children with their homework? If for no other reason, this may help them understand what is missing. We will get more specific later, but here are some beginning hints.

Collection Needs

Learn what resources your teachers and students need if they are going to be more successful and you do this in terms of the resources you have to offer. Develop a collection analysis plan, not just age, although that has been revealing, but a collection development analysis and plan for purchases in the future.

Have you mapped your collection against the curriculum offered in the school? Have you thought about what will happen next year and the year after that? Curriculum does change, and historical events alter what students are going to study. Does your strategic plan include adding what you will need based upon the curriculum?

Service Needs (that can be expanded with clerical assistance)

You learn what happens in a school with paid clerical help in the library even for two hours a day. This gives you freedom from changing paper in the printers, helping (not teaching, your job) children access databases especially those new to your school. Can you make a list of exactly what this person would be doing every minute of the time in the library? It can't be help shelve books, help put up bulletin boards, help do anything that the principal perceives as your role as librarian. You must move your administrator's perception of what you should be doing. Unless you have made a case for it over time, their image of the school librarian is someone who stays at the charging desk, stamps out books, gives a library lesson or tells a story or gives a book talk and then returns the students to their classroom. This has little relationship to classroom assignments.

What should a teacher's aid be doing? Perhaps they should be helping organize volunteers as well as return materials to the shelves and drawers. Let's talk about what volunteers could be doing, and what this would cost if you had to pay them.

Let's talk about having a practice teacher in the library and how they need to see a library with clerical assistance. Do you know where a school exists with clerical help at all levels so you can point them out to administrators? If you are in such a school, perhaps you should consider giving a talk at IASL next year, with your clerk to back you up, so that the rest of us can bring our administrators to hear what happens.

You need to build the case for your responsibility for teaching information literacy. You have access to a variety of information toolkits and more being created all the time. You need to build a compelling case for how students **MUST** become information literate if they are going to be able to survive in a global community and you don't do that by just talking about it, you must show everyone around you how this happens and how important it is.

You must have an idea of what additional services you could provide – how many more times a week students could come to the library – how much more planning time you could provide while instructing students who are in need of help. Do you have other ways to move Harry or Mary into a different mindset?

Discussion here

Let's begin to look at ways to identify what we need and how to show it best.

Action Research

The most effective action research projects involve persons who are interested in the results. You need support from administrators, teachers, parents, students, and the community to help with the data gathering and to help you decide how to share results later. While we're going to talk about action research that will help you discover what you need to support your requests, we will then help you with sharing results after the study is completed. Involving the school community in the process gives them the opportunity to buy into results.

The purpose of action research is to learn what you are doing, make some of the proposed improvements, and test the outcomes of your activities. We will do this in the context of the following questions for you when you begin: What do you need to find out (your question)? Has anyone asked your question before (your review of the research)? Who will you ask – who can help you with the information you need for the answer (your population)? What will you ask (the answers you need)? How to ask (what method will you use)? When to ask (when will it be most likely you will be able to reach your population)? How will you analyze the answers (what methodology will you use)? To whom will you report (who are the decision-makers, the advocates)? How will you prepare the report (the writing, the describing)? What do you expect to happen? What happens next?

How will you do this? You must decide who to ask, how to ask, when to ask, how much to ask, and what will you do with the answers you get. Finally you will ask who to tell? What are some questions you might ask?

Your questions

Work Sheet with small group discussion

- 1) Do your services meet the needs?
- 2) What would a paid clerical in your library help you improve services?
- 3) How well will the collection meet student and teacher needs? Have you mapped your collection in relationship to the curriculum?
- 4) What about checking bibliographies of research reports to see if the citations were from materials in your library?
- 5) How do you check to see if you're helping someone with research made their research report better? You could, of course ask them.

- 6) Does it make a difference if you work with teachers BEFORE they bring students to the library?
- 7) Does it make a difference if the teacher stays with students during their time in the library?
- 8) Let's see what happens if you do something that improves reading scores in schools. Will this change anything?
- 9) How do you determine if you're working with students helps them get into a college or to get better jobs?
- 10) How do you determine if the program you presented resulted in more use of ____?
- 11) How to determine the impact of a reading program with upper class students who read to younger students in your library on Saturday afternoon?
- 12) What happens when?
- 13)
- 14)

For each research question to be answered, how do you find out the other items?

Reviewing the Research

One opportunity is to go the research and find research that will help you plan what to test and also help you see what findings were with a similar study. You will add to this information as you do your own action research projects, but here is where you start. It's there. Keith Curry Lance in a recent presentation told the audience that research in school libraries has been ongoing for more than fifty years. If you can't find it easily, call you nearest educational institution, although much of this is available on the Internet. Much of how students learn how to use information is available in a book Dave Loertscher and I collected, *Information Literacy*.

Lance also mentioned work done by Mary Virginia Gaver. Her studies of the impact of elementary school libraries on reading were the foundation for much of the research on location of materials available in libraries today. Lance himself has conducted landmark studies of the value of school libraries in the achievement of students in schools. Others have looked at how administrators, teachers, and students view the school library and the librarian. Still others have addressed teaching and learning styles, the impact of access to information, among many, many others.

Who (your population) or what will you ask?

Once you have determined your research question, you must decide whom to ask to help you find answers. Will the students or teachers be able to help? What about the clerical staff in the library and in other offices in the school. They often have a very close contact with students and teachers and can help you learn about their needs. Will they give you true answers to your questions, or can you phrase any questions in such a way that they can't tell you what they think you want to know? Do you need an outside person to observe you? Will

you just be looking at records and making judgments yourself or will you ask someone else who might have less bias to look at those records (test scores or purchase orders or, probably not so good, circulation records and make judgments from that?

After this question, return to worksheet with small group discussion for each of the following questions.

How to Ask

What methods will you use? Focus groups, questionnaires, surveys, interviews?
What might you count, why, and what results do you anticipate?
What can you compare contrast? With whom?

Worksheet

When to Ask

What is the best time to ask these questions?
Where will you find the persons to question?
Will you have time to tabulate the results before you must make a report?

Worksheet

How Will You Analyze Your Answer?

Count checkmarks?
Use a spread sheet?
Statistics program?

Worksheet

How Will You Prepare the Final Report

Only narrative?
What graphs? Charts?
What other graphics?
On disk?
Video?
Combination of Media?
On your web site?

Worksheet

What Do You Expect to Happen?

Yes,
No,
Maybe?

Worksheet

Reports back from individual groups.

BREAK HERE

Best Ways to Ask

School libraries are important places for administrators, students, teachers, parents to come. School libraries are important places for governments to fund. Libraries are important, and everyone seems to agree. Yet, how do we get others to support us. No one ever has enough money, but many often do not get the amount of money that they should; however, sometimes school libraries don't get the share they are supposed to receive. This often means that the persons who handle the funding find it easier to cut the library than to cut elsewhere. They need to learn that a population of non-thinkers will not help any country survive in a global economy. The school library and its contents are more important to lifelong learning than any other part of the school. How do we get our teachers to help us get our message to our funding persons who must support us?

Some concepts are observations from my own career and some of the principles I have learned and believe in that I have gathered over time. Today you will hear a total of eight. Getting affirmative answers begins with each of us as an individual.

1. Be a good example of an information professional in every situation, at home, at work, at meetings, at church.

One of the most frequent concerns our students express is what their image will be in the world after they have graduated. They expect someone else to do something or be doing something, usually a professional association such as the American Library Association or the Special Library Association. What they don't seem to realize is that these organizations are made up of individuals, and they will be one of those individuals in those professions. The image we project to our students and teachers in relationships in the school sets the image that they who are not librarians will carry. We need, at all times, to be able to be proud of our profession, to serve, it is a service profession, and to show others that it is a position to be sought after, too. In many areas, the recruitment of all types of librarians is critical. We need to model the joy and rewards of being school librarians for the public at large and especially within our schools.

2. Love your school library and be proud of your profession. Make sure YOU believe in the worth of your library and your services. Make sure you believe you should be telling others all about it.

You have chosen to be a member of the school staff and provide school library services to your patrons. That means you want to work closely with students and teachers and to help them locate the information they need to function in their worlds. You want to help prepare your students for higher education, to be able to go directly to work, to have a healthy life style and become good parents, to achieve as high a level as is possible, and to be good citizens of the world. You must want to do that and you must have a commitment that is more

than salary since very few of us in this profession make large sums of money. Our service makes a difference in people's lives. We are important, and we need to make sure others understand this.

3. Know that you need to ask.

This section has two points, one that we should not sit and wait to be given support just because we are good and the other is that sometimes we think that doing more for less is good. Many of us who work in school libraries try to provide materials and services for our patrons in reality of limited funding. As stated much earlier, we sometimes take pride in how well we continue to offer services in the face of adversity when, in fact, it is accepting the situation rather than treating it as a challenge to do better. Making budgets stretch, finding substitutes for more expensive items, learning how to "make do" allows us to feel pride that we can offer more for less, to keep our level of service high within the slender allowances we are given.

This does not build good library services in a global world. Keith Lance has shown in four states in the U.S. that good libraries and well-prepared staff members who manage good collections of resources make a difference in student achievement. We owe it to our students to have the resources to make sure they have an even chance for success in a global community.

We most strive for better collections, continued training as our field changes, and the ability to see other opportunities to improve our services. How will anyone learn just how important libraries in schools for the teaching of teachers and the learning of students if we don't tell them? Truly, few libraries are funded just because libraries are good things. Know that you must ask, and accept the challenge of asking. Be willing to ask.

4. Know that you are willing to ask.

Know that it is important for you to ask whether you are new to the situation or a veteran.

Know that, even when funds are limited, funds are available for the most important things and that providing resources for your students is critical to their growth and learning.

Know that being told, "No," means a different, more exciting approach the next time. Hopefully after this lecture, you will be able to build a case where it becomes impossible to say, "No." However, if you are worried about your image in case you aren't successful, get someone else to make the request.

When we ask, the way we stand before the group, the tone of our voice shows people we aren't all that sure and that we might not believe in our request anyway. It's easy for your audience to turn you away without help.

If you think it will happen, you are poised on the brink of success. You must start with a belief in what you are asking for or you don't begin the process.

We ask confidently even though granting our wish may mean we must change something we have been doing and treasure, or, even more difficult, we must change our teachers and students and some of them may lose something they treasure.

5. Know what you need to ask for and have supporting evidence for your request.

We know what we need to ask for and we have the supporting evidence comes from our action research projects discussed earlier. You will just move your evidence from there to here, but first we need to settle on the first priority for our request.

We have decided what we need, what should be in our request? How do we decide what we want to target in our campaign for better school libraries? Does your school library need to buy books and technology for your students, access to databases as a part of your "materials" budget.

Building your case will be strengthened by your attending as many conferences as you can. Here is where you learn what's going on in other parts of the world especially those parts where funding is about the level of yours, but where they seem to spend it more wisely on library staff, materials and services. This sort of comparative analysis is more likely to convince your administrators/funding sources than anything else. Keeping up with the Joneses (a saying in the U.S. that means you must have what the Jones family next door has) still works.

Meeting others at sites other than your library helps you learn what you should be buying for your patrons. You must return to your library with a buying list of "can't miss" selections, you are on the way. It's where you say, and I am parroting children getting ready for the December holidays with, "EVERYONE ELSE HAS IT."

Others can help you determine ways they have found successful at all levels of the library and information science professions. You learn how to help your teachers and students, what the trends in the information world are. You learn how others work on the image of the library, how they negotiate change in what's been happening. Unless you have made a case for any change in your library over time, the image of the librarian that your school community may have is not the one you would wish them to keep.

You have determined what you need. You have asked the appropriate persons, teachers, students, and their parents. You have assessed your collection for the gaps in it and you have lists of materials, equipment, software, online databases to fill those gaps. You have definite numbers matched to something concrete, for example, we can't help our biology teachers with what they need to teach. We have X number of topics that we had no information at all. Much that we do have is dated, irrelevant information. Here are the titles, databases, etc. I would like to purchase and their costs. Then we need materials on X and here are the numbers of references queries we have been unable to fulfill, here are the materials and costs.

You have built the case for your responsibility for teaching information literacy. You have at your fingertips your own plan for teaching. You need to build a compelling case for how your students **MUST** become information literate if they are going to be able to survive

in a global community and you don't do that by just talking about the problem, you must show everyone around you how this happens and how important it is.

6. Know who to ask for help.

Sometimes we don't seem to understand who to ask. As stated earlier, in the U.S., children learn early on to ask Santa Claus. They know that their best way to get what they want is to ask, and they rather expect their wishes to be granted by their parents and grandparents or maybe a favorite aunt or uncle. We, as they do, must believe in our need and we must ask the right person to honor our request. The key is to go to the person(s) who can help you get what you need. You must have some idea of the financial or human resources of the persons you are going to ask or you will have no hope for success. It is often easier to go as a group.

Discussion here.

Never underestimate the ability of a group to help you do what you want to do. We can start with creating an advisory committee for your library. Who do you think should be on this committee?

Who else will you ask for help? Don't miss anyone!

Students have little financial resources at their disposal, but they can offer other kinds of help and, in the process, they may be able to show positive results of their efforts. Have older students read to younger students, especially if reading is in need of improvement for the older students and help build their skills. You see, not every request need have a dollar amount attached to it.

Teachers can also be helpful with their involvement in your studies. Remember that their time is valuable and if they help you with building collaborative projects, they may be doing so, at least the first time, without reward. It will only be after the first successes that they will see the benefits of their involvement.

If you have involved parents in the work you have been doing in preparation for the request, they can let you know what they can do. They must be totally behind you in everything you are trying to do. You may need to locate the leaders and the gatekeepers in your community of parents to help you build up the support of all. Do I need to define "gatekeeper?" These are the people that everyone goes to for information. They may not be in a position of authority, but they do have authority. They may be the ones who speak out in meetings, but they may not. In fact, they may almost be silent in meetings, but they have talked with others in the audience about the topic of the discussion and they do effectively problem solve.

Your administrator is a possibility for assistance with financial returns. This is an interesting situation, and I may be totally incorrect, but you should have gone to your administrator with the discussion point that you want to work with him or her to make the library a better place for your patrons. Administrators need to be bombarded with clever reports of the good things that happen in your library so that they can brag to other administrators in meetings they attend.

What do your administrators or others who fund you (and in the U.S., this is the School Board) think about library materials? Do they believe that they are essential or that they are obsolete? Do you know? When is the last time you talked with your administrators as individuals or going as a group? What did you talk about? Or did you only whine? Could you take your staff and students with you when you go to ask? Can they demonstrate their success in the use of information in your school library?

You need to report to all these who hold your professional life in your hands. Many of them are persons who need to be given at least a once-a-year report. Sometimes information can be "leaked" to your administrators through volunteers who work in the library. Any student aids you might have are also useful in this type of campaign.

Your community is full of persons who might help if you were careful to develop a great picture and then tell each person which part of the puzzle they represent. In funding campaigns, most fundraisers say you should have half your goal before you go public. So, if this is true, who do you want to fill in the missing piece(s)?

7. Know when to ask.

When: Before you need it, before you are desperate. But, when you know whom to ask, when will be when and where you can meet with them to explain the situation in such a way that they are compelled to grant your plea.

The political approach is to do some background to know what is on the agenda at the time you are going to ask. If there is a big discussion about major funding that needs to be done your agency has just been asked to cut funding in half, it is not a good time to ask for additional funding. Better to wait aside until things have become less of a problem.

For school librarians, the time to ask is at the parent-teacher meeting, for the district it is your school board meeting. For organizations for adults in your community, we have Kiwanis, Lions, and Rotary Clubs, who have regular meetings, take some patrons along to speak for you. If there are service organizations, agree to do an interesting program for them, or get your teachers or students to prepare an interesting program and go with them to the luncheon. If you have prepared them, through your description of your school library and maybe a modest need for something, you should get a contribution for the effort with an annual gift anticipated.

Tell about your school library. You need to let the audience know what your school library offers so that they can put into perspective what you are asking them to fund. If you are going to give a compelling case, you want as wide and affirmative an audience that you can gather so that you have many friends in the audience.

For the community in general, go to as many meetings as you can get invited. If you become adept at presenting a program, you will be much sought after, and, if you can't do it alone, draft other staff and patrons to help you. It doesn't need to be any more difficult than preparing a book talk of what is new for them to read – and make it a wide variety so you have something for everyone. How you plan to do this is equally important.

8. Know How to Ask.

Once you've discovered whom to ask, and assuming you are going to do something directly related to your library and more than a book review session, what information about your library will be so compelling for them to learn that they can't refuse you? Your choices are wide. If you remember our discussion of preparing our reports of our action research projects, you have written reports, personal presentations, a well-prepared video, a combination of media, and all added to your web site. **How else?**

For personal presentations, a great deal of advance planning is necessary. You won't have the ability to "edit the document" that you do with a written report. Knowing how to ask is directly dependent upon your audience. To ask when you are at a meeting, especially if you offer them a formal presentation, means you can tell them your success and then you can discuss how they might help you with something directly related to your library. Plan your presentation with information about your library. This should be so compelling for them to learn that they can't refuse you?

A first step is one that has great impact and little to do with your mission. Dress for the part. One of my friends, a psychologist, has always said to wear pink or blue because no one ever attacks anyone wearing pink or blue. Another says it won't matter what you say as long as you look very professional saying it. If you are going to make a presentation, make sure you have one very nice outfit to wear to the meeting to meet the group.

The focus of what you are asking is audience dependent. If you are asking from a group that would like their name on whatever is purchased, suggest that whatever you are asking will have the name on it so that everyone in the neighborhood will see that when they go by.

If you are talking to your parents or the community, you may want to stress that a purchase will be useful for more than a single time. Most people who make gifts like to know they will have a longer life span than a sack a bag of cookies.

Another clue is to state your case with pizzazz. Prepare your presentation using the best and most glitzy presentation you can create. Use GREAT power points and GREAT visuals. Any handouts should be of professional quality. If you can take students along to demonstrate, their "evidence" will be especially compelling.

If you have a web site for your school library, much of the information about the library, its successes and its needs can be placed there, and you can prepare newsletters that keep parents, advisory committee, administrators informed about the activities of the library. Tell them what can be done if something you need is in place, i.e., if you had access to a database rather than the Internet, would you be better able to protect students from something you didn't want them to see?

In your library

- Create your own website that you share the successes of your library to the greater world. Make it exciting!
- After your students have graduated, you need to remember to report their successes on your school's web site. I'm sure you will have room for success stories from graduates who are either in the workplace or attending a university.

- Keep your website up-to-date and exciting. Allowing students to help with this increases their knowledge and takes some of the burden off you. You need only recruit interested and reliable students.
- Constantly collect statistics about services offered and about needs. It is very stressful to have to collect statistics when the need is there rather than looking at your spread sheet
- When you prepare anything that the public will see, make sure it looks professional
- Hold focus groups of teachers, parents, from the community to find out what you are doing well and what you could be doing better.
- Write letters to influential persons who might be interested in improving the information resources at your school
- Report what is going on in the library to all interested groups.

Making it difficult to refuse, requires making careful choice of words do you use? Make a case for which there is only ONE answer, “yes!”

Handout with group discussion and then sharing ideas.

If at First You Don't Succeed

Try, try again! You must never apologize for asking, even if you don't get a “yes” the first time. You need only find out what would make a better request and change yours to reflect the suggestions.

Increase/widen efforts from “How to Ask”

What is real and true is that.....

You hold the solution to the learning and teaching needs of students and teachers. If you don't ask for resources for your school library, how will your students be prepared to become educated adults in this new century? If you don't accept the challenge of creating a vision and your school library colleagues, who will?

Can Your School Really Survive without You?

Can your school really survive without you? I've been giving a similar talk to school librarians for a long past. When a colleague of mine is worried – and he's been in Canada a lot lately because school librarians are having serious cutbacks everywhere – where one school librarian himself believes they are doomed, I pause to listen. Students don't need a library; they have the Internet in every classroom. Wow! A technology person is on board to help keep those machines running. Wow!

And, are you really going to believe that? I can't make you believe me if you won't, but information is a priceless commodity and helping students learn how to make accurate judgments for life decisions based upon critically thought-out solutions to problems, large and small is in your hands. Teachers and administrators and students need the best possible quality information that only you really know how to find.

Your school may be able to survive without **you**, but they can't survive without an excellent information professionals doing what you do -- to help teachers teach, students learn, and even administrators administrate. It's up to you to ask for what you need using the best possible approach.

You hold the solution to the learning and teaching needs of students and teachers. If you don't ask for resources for your school library, how will your students be prepared to become educated adults in this new century? If you don't accept the challenge of creating a vision and your school library colleagues, who will?

Developing Power and Influence for the Professional Teacher Librarian

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Are teacher-librarians in Australia influential in their school communities? Certainly, many are considered successful by other teacher-librarians. These are the ones with high professional profiles. They write widely in library journals, they speak at conferences and are highly regarded in the international school library community. They exert influence as teacher-librarians within their profession. Their innovations are taken up, their ideas are debated and their leadership may be inspirational. But what of their role within their own schools. How do the students, the teachers, their principals regard them?

Is the influence they experience within their profession, transferred to their wider school communities? Indeed, how do they regard themselves?

This paper will study the responses to a series of questions from six teacher-librarians who are generally regarded as influential leaders within their field. These responses will be analysed with a view to testing Hartzell's (1994) scaffolding for building influence for the teacher-librarian. The major limitation of the survey, is that only the teacher-librarians' responses and perceptions are under review. It was not possible to test the perceptions of those who work in the schools with the teacher-librarian respondents. So, Hartzell's fundamental principle of influence could not be tested.

"Influence is derived from the perceptions of the person to be influenced, not from the perceptions of the person doing the influencing. The key to building your influence lies in your ability to shape the perceptions of others" (Hartzell 1994:p.viii)

However, it is possible to compare and contrast the key components for building influence that Hartzell proposes, with those that are being practised in some of Australia's leading schools by some of our most high profile teacher-librarians.

How teacher-librarians see themselves is a significant starting point in testing their potential for power and influence. To be influential requires teacher-librarians to be visible and to engage with the people with whom they work – the students, the library staff, the teachers, the principal and the wider community. Hartzell (1994) maintains that without engagement, there is no recognition. Teacher-librarians need to build a power base of influence and then be prepared to maintain the influence that the power base will bring. We will see from the survey just how the respondents believe they engage with their community; their spheres of influence; their strategies for engagement; their involvement in politics and the building of influence through engagement of activities outside the library.

Surveying teacher-librarians

The idea for this project began after reading Hartzell's text "Building Influence for the School Librarian". A comment and some questions were posted to the ETL 521 forum. It was suggested that despite the prevailing belief that the relationship the teacher-librarian has with the principal is paramount, there are other relationships (depending on the educational environment) which are also significant. The forum was asked to name other significant relationships, along with this question:

"Can you think of an occasion/incident when through your influence as a teacher-librarian, something changed, an innovation was introduced, or a problem was solved for the whole school community"

The variety of responses to these questions along with the interest and passion with which people responded, inspired the undertaking of a more detailed survey of selected teacher-librarians.

Six teacher-librarians were selected for the survey. Five of those selected are known personally. Advice was sought from James Henri as to his opinion of the suitability of the teacher-librarians selected. He advised the inclusion of the Western Australian participant. Three teach in boy's schools and three teach in girl's schools. Five of the six are from the independent system. One is from New South Wales, one is from Western Australia and the other four from Victoria. All are female.

They were first approached by e-mail, describing the project and inviting them to participate in the survey. None of them knew who else was being surveyed, only that they were six in number and were all considered to be successful and influential by the profession. They were given an estimation of the number of questions, the time the survey may take to complete and a time frame for completion. All but one of the responses was returned within the given time frame. All respondents had to be followed up for further information, as some of their answers were incomplete, or further clarification was required.

Questions ranged from personal questions about years of experience to questions about their perceptions of their influence, their strategies for achieving influence and their relationship with their principal. (See appendix 1 for survey)

What does the survey tell us about the teacher-librarians?

To ensure anonymity and confidentiality when analysing responses, the teacher-librarians will be identified as **A, B, C, D, E and F**. Each of those surveyed had between 16 and 30 years experience as teacher-librarians, so there was a wealth of background experiences on which to build influence. It is worth noting that two of the respondents **D and F** have been in their schools under 2 years, **B and E** over 6 years and **A and C** over 18 years. Four of the six respondents worked in prestigious independent schools, the fifth worked in a small independent school and the sixth worked in a prestigious state school. (See appendix 2 for table of background data)

When asked if they knew their Myers Briggs personality type, only **C and F** responded. **C** indicated that library staff had been "*given the opportunity*" to undertake professional development, perhaps indicating a lack of focus on the attributes of influential people. Who are you? What is your preferred way of operating? What are the attributes of leaders? What is your personality type? How can you use the strengths of your personality

type to build influence? On the other hand respondent **F** indicated that she had personally undertaken an MBTI workshop at her own expense and was "impressed with the insights that it gave me". She "*decided to organise*" an in-service for her library staff, so they could all have the opportunity to better understand their own and others preferred ways of operating.

The language used by the two respondents **C** and **F** seem to indicate that **F** is more proactive as she '*decided to organise*', while **C** was '*given the opportunity*'. It would appear that **F** does have some influence with the professional development people in her school, as she was able to provide a school-funded MBTI opportunity for her staff. In reviewing question 14 and 15 about the influences on respondents, we see that **F** has included the Director of Research and Development as both someone who influences her and someone she influences. On the other hand, in **C**'s responses, a professional development role is absent from both question 14 and 15 and question 6 (under Principal) about "who else in the school is vital to your success?".

How influential do teacher-librarians think they are?

Perceptions

In "Building Influence for the School Librarian", Hartzell approaches his topic from the administration's viewpoint, while this survey approaches the topic from the point of view of the teacher-librarian. They were asked: Q1. How do you demonstrate influence? Q4. What are your spheres of influence outside the library? Q9. Are you the chair of any groups within the school? Q 11. What do you do to become personally visible in the school?

How do these teacher-librarians demonstrate influence? The answers to this question ranged from the importance of being on committees, which was perceived as 'having a voice' (**A**) to 'I ask the hard questions' and there is 'the perception that the teacher-librarian is knowledgeable' (**B**). An interesting and vital clue to **B**'s influence was her comment that she 'plots a path to keep my agenda in the limelight'. She believes her 'support of staff' with technology and information skills is also a way of demonstrating influence. **C** added that she 'attends functions and events'. 'Attend' does not appear to be a term of influence. If she had 'organised' or 'initiated' activities, her influence would be perceived to be greater. **D**'s responses were lengthy and detailed, using terms like 'future directions', 'modelling', describing herself as an 'outspoken member of committees'. She certainly practised Hartzell's urge to become engaged. Respondent **E** was aware of the language of influence by using words like 'proactive', 'working closely' (implying equal partnerships), 'on the ball', about her information literacy agenda. In contrast, **F** included personality elements in her response to question 1. She said she was 'liked by the students', 'respected by the staff', was 'asked advice by the teachers' and was 'invited to join committees'. **F** believed the above happened because she was 'organised, efficient and knowledgeable'. Hartzell (1994) proposes that knowing yourself, knowing your job, knowing your setting and knowing your constituents are important in maintaining influence. Interestingly **F** was the respondent who valued the MBTI as a tool.

What are their spheres of influence outside the library? Most respondents listed a series of successful activities in which they had been involved, ranging from mentoring programs and supporting the PEEL program (**B**), integrating technology into the curriculum (**C**), virtual classroom programs (**E**) to naming individuals who are influenced by them (**D** and **F**). There was a wide cross-section of spheres of influence: Computing, professional development, heads of department, curriculum co-ordinators, with only **D** including the

principal in her sphere of influence. This resonates with the view that was expressed by the ETL 521 forum. The principal is important to the teacher-librarian but not necessarily the greatest influence on them.

What committees are teacher-librarians chairing? Four of the six teacher-librarians were chairing committees, which must give them considerable influence in those spheres at least. The range of committees was encouraging. Respondent A chaired 'Copyright and Archives', possibly not seen as a powerful committee by others within the school. It would have been worthwhile to have included in the survey a rating (1-10) question about the importance of their committees to the mission of the school. C chaired the 'Curriculum Resources Development Group', which includes some powerful members of the school community, including the principal. The 'Information Technology Committee' is chaired by respondent D, and F is convenor of the school-wide 'Literature Festival Committee' (this committee includes parents and students).

How do these teacher-librarians become personally visible? There were some discrepancies in their responses to this question. Some of the respondents focussed on their professional or library visibility, which resulted in answers that were similar to their answers in question 1 about demonstrating influence. Respondents A and C included references to activities outside the library, which for A was the annual concert when the library staff put on 'an Act'. Respondent B considers herself 'outrageous', while C has been 'school musical director', 'editor of the school magazine' and 'speaks at staff meetings and curriculum days'. Like B, D focuses on appearance and personality, citing her liking for 'wearing loud colours'. 'Sending e-mails' and 'attending subject meetings' are considered by E to add up to personal visibility. Respondent F believes that being 'gregarious, warm, up-front and direct' is important. She also mentions 'talking to students and talking to everyone', along with 'going to happy hours' and 'attending assemblies' as important. F also places importance on appearance, citing 'dressing as an individual' as an element in her personal visibility. These teacher-librarians are indicating that their presence at school events, while 'dressed to be noticed' are strategies for increasing their influence in their schools. For many years the business community has been sending its staff to seminars on personal grooming, appearance and choice of 'power' colours, but it is not generally a topic that appears in library or education journals. Maybe we need to commission an expert to run a seminar or write an article for teachers and teacher-librarians on 'dressing for success' or 'developing an influential style'.

What strategies do teacher-librarians use to build influence?

Question 3 asks the participants about "...strategies they have put in place to ensure that there is a minimum of indifference towards information services or the library". Again, many of the responses were similar to the answers given in question 1 about demonstrating influence. However there were some different angles worth noting. Respondent A believes that a 'library presence on the Internet' and 'library skills classes', are strategies which 'result in a full library' and ensure minimum indifference. Of course, surveying the teaching staff can only test these assumptions. One of the respondents is 'working to overcome indifference', by building her own credibility, even if other library staff may lack it. Teacher-librarian C appears to be more proactive when it comes to avoiding indifference. Her language changes from the passive, 'attends meetings', 'on committees' to the proactive language of influence. She 'established a global learning centre in the library' and 'initiates discussion about use of this space'. Respondent D is 'rebuilding professional respect' and

'advocating far and wide'. **F** believes running 'efficient systems', having an 'inclusive student-centred service', and 'encouraging and supporting the library staff to be friendly and approachable' will ensure minimum indifference. All of these show a different approach and say more about the personality of the people being surveyed than they do about their professionalism.

Interestingly all six respondents answered question five positively and with great detail when asked if they 'had ever written an article for publication in a non-library journal, or spoken at a non-library conference?'

The following table gives an indication of the spread of areas where this group of teacher-librarians has either spoken at a conference or written a journal article.

Computing	Subj. Assoc.	Other school/system	Overseas Conf/journals	Universities
14 +	14+	5+	6	3

It was encouraging to read that respondents **B, C, E and F** have all presented at conferences with other teachers. **C and E** have even presented with their Principals. **C and D** have written articles jointly with their principals. I believe that this data is not necessarily applicable to each respondent's **current** school.

The responses to question 7 "What tactics do you use to influence teachers?" are worth analysing. They appeared to fall into 3 groups: (a) modelling, (b) leading and (c) co-operating and providing. Respondent **A** *modelled* by 'showing the benefits of using the library', while **D** cited 'guiding', 'showing', 'telling', 'doing' as strategies she used. **E** also *models* as she 'demonstrates educational benefits for students'. **B and F** both appeared to prefer *leading* strategies, using the language of influence. **B** said she 'lead by example'. **F** used the terms 'surprising them with new initiatives' and 'introduces', suggesting a proactive approach to influence. **F** also used *co-operating and providing* strategies 'working through the principal and the senior committee', as did **C**, who 'works alongside teachers'.

When looking at influence in schools, the parent body must never be overlooked. Question 13 asked the participants " what have you done to capture the support of parents?" All of the respondents were active in this area. They speak at parent meetings, write for their newsletters, organise 'friends of the library' (**A, B, C and F**). Respondents **A, B, E and F** have initiated activities for parents in the evenings. This group of teacher-librarians has acknowledged the importance of parents, but they do not appear to have used the depth of influence that is potentially possible. Hartzell (1994) includes several pages of suggestions of ways teacher-librarians can capture the support of parents, which were not mentioned by the respondents.

There are three possible reasons that could explain the lack of innovation in gaining the support of parents amongst this particular group of teacher-librarians: (1) the cultural differences between schools in the United States and Australia ;(2) the surveyed group is primarily from the independent system which has different demographics; (3) or simply, parents are currently being overlooked as potential sources of influence by teacher-librarians.

How do teacher-librarians see their relationship with their Principal?

Many writers have looked at the significance of the Principal's relationship with the teacher-librarian. Haycock (1981) suggested that without Principal support teacher-librarians were unlikely to get to first base. Henri (1988) believed that "teacher-librarians thrive upon the leadership of energetic, supportive, visionary administrators". Hay and Henri in 1995 continued this theme, going so far as to suggest that the teacher-librarian should share the 'world view' of the Principal and have broad based support within the school.

What is the view amongst the surveyed group of teacher-librarians?

Of the 6 people surveyed, only three respondents believed that the Principal was aware of the nature of their job. Those who answered 'Yes', described the Principal as 'sending them articles about good libraries', so he must know what I do (A). C who has presented at a conference with her Principal believes he knows what she does. Recent conversations that E has had with her Principal indicate that 'she is now more aware'.

The three respondents who answered 'No', include the two teacher-librarians who have been in their schools under 2 years. Both indicated that they were being proactive in informing the Principal. F sends him copies of library meeting minutes and articles she writes. He gives feedback, so she knows he reads them.

All but one of the teacher-librarians feels that they get positive feedback from their Principals. They give written and verbal support; they listen to ideas and 'seem to enjoy discussions'. They 'showcase the library to visitors' and are 'generous with positive comments'. This is clearly not a group of teacher-librarians without influence with their Principal. However, in question 14 and 15, in the second part of the survey, A, C, D, E, F all listed the Principal as one of five people who influence them in their schools, but only D indicated that she had any influence over the Principal in answer to Question 15.

It would have been interesting to ask the participants if they agreed with Hay and Henri's (1995) proposition that teacher-librarians thrive under visionary and supportive administrators.

Only one of the six respondents had scheduled meetings with her Principal, but all indicated that there was regular official and unofficial contact in the staff room, at recess, by e-mail and that meetings were arranged as required. Most of the teacher-librarians, when responding to the question, "How does the Principal support the library?" cited budgets, staffing, professional development opportunities, speaking positively about the library and encouragement. F went a step further, noting more personal support from the Principal by mentioning that there was 'autonomy, trust, faith, respect'. Hay and Henri's initial findings from their 1995 study, found that Principals "rely on the professional judgement of the teacher-librarian, so long as the teacher-librarian demonstrates that trust is warranted". If the survey had phrased the question more personally there may have been more enlightening responses.

What strategies then do these teacher-librarians use to get Principal support. They present solutions, not problems (A, F); use correct channels, try to influence the real decision-makers (B); focus on benefits for students (C); support arguments with examples and statistics (C, F); have constant dialogue (D); share initiatives (E, F); give him articles about education, learning and libraries (F).

Do teacher-librarians participate in politics?

One of the surprising outcomes from the survey was the lack of awareness or acknowledgement that politics is part of building influence for teacher-librarians. In question 6 the participants were asked "Do you take part in internal school politics?" They were also asked if they were comfortable with this? Three said 'Yes' (**B, D, F**), three answered 'No' (**A,C, E**). The 'No' respondents said 'I am politically naïve', 'I avoid it', 'No, but I am well informed'. The 'Yes' respondents added 'to increase opportunities for collaboration' (**D**), 'influence is enhanced if aware of politics' and 'it is most important to find out who to try and influence (**F**).

Hartzell (1994) reminds us that every organisation is political and cites Bellman (1992), who counsels us to acknowledge the reality of politics and to know that we are part of the process. Even if we do not see our actions as political, others might.

Shortcomings of Survey

- It appeared from many of the answers to the survey questions that the respondents were guessing. What were being tested were the perceptions of the teacher-librarians. Not one of the respondents mentioned that they had undertaken any sort of survey of user needs. They may have overlooked this in their answers, so the survey should have asked this question at the outset.
- As the surveys came in and the responses were collated, it was clear that there were not enough personal questions to get an objective picture of the personalities of the teacher-librarians. It would have been interesting to ask them "How would the students/Principal describe you?" As only two respondents had undertaken a Myers Briggs analysis, this question was unable to be adequately pursued.
- Colleagues in the respondents' schools could have been contacted and questioned on how 'X' demonstrates influence. Unfortunately this was not possible for this project.
- Another question that should have been included was "Do you want to be influential in your school. If so, Why?" There was the presumption in the questions that influence was desirable. However, the responses to question 8, "what would be different if you had more influence?" were diffident. It was surprising to see a lack of interest in this possibility. **C** would have 'more impact on teaching, learning and curriculum planning'. **D** said 'everything would be different'. **E** indicated a 'voice on information literacy would be on all the curriculum documents'. **F** would be 'part of the senior executive' and 'we would be an information literate school community'

Summary

Langford (2000) sees influence as being about credibility and about understanding and using the power of heuristics. The teacher-librarians in the survey are certainly aware of the importance of credibility, but as a group are not using the language of Hartzell's heuristics of influential people; that is likeability, expertise, sensitivity, a controlled ego and focussed energy and effort.

Most of the respondents indicated that they were valued by the Principal, by teachers and students and indeed by the parents. Their self-esteem, their credibility and their expertise

were all intact. People want to be involved with a teacher-librarian with a high profile. Therefore their potential for influence was huge and perhaps under-utilised.

"The most influential teacher-librarians make teachers look brilliant, but who makes the teacher-librarian look brilliant" (Personal communication, James Henri to Suzette Boyd October, 2000)

If an outcome of a survey of this type was that teacher-librarians gave more thought to being influential, perhaps they **will** eventually become brilliant.

Personal Data about Teacher-Librarian Respondents

Teacher-librarian	Title	School type	School population	Library staff	Years of experience	MBTI
A	Head of Library and Information Services	Independent Girls	Staff - 100 + Students - 1100	6 including 2 T/Ls	18 as T/L out of 26 years working	
B	Information Research Co-ordinator	Independent Girls	Staff - 100 Students - 870	9 including 3 T/Ls	20 as T/L out of 28 years working	
C	1. Curriculum Resources Co-ordinator 2. Curriculum Technology co-ordinator	State Boys	Staff - 90 Students - 1350	5.5 including 3.5 T/Ls	25 as T/L out of 27 years working	INSJ
D	Head of Information Services	Independent Boys	Staff - 90 Students - 980	8 including 4 T/Ls	20 as a T/L out of a total of 20	
E	1. Director of Information Services 2. Careers Co-ordinator 3. SS Curriculum Co-ord	Independent Girls	Staff - 45 Students - 537	5 including 1.5 T/Ls	16 years as a T/L out of 16 years	
F	Head of Library and Information services	Independent Boys	Staff - 125 Students - 1400	8 including 3 T/Ls	30 as a T/L out of 31 years	ENFP

Get A Life: Fast and Furious Cataloging for the Overworked and Underutilized Teacher Librarian

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Abstract

This workshop and paper is intended to give participants an idea of the types of services currently being offered. The products and services listed here are done so for the participants' information and ease of follow up in collecting information about what their needs are. The author has no links with any of these companies and by their inclusion is not recommending any of them in particular. By the dynamic nature of the Internet, web sites will change and even though the author has checked the websites listed before publication, there is no guarantee they will be the same when you visit them.

Cataloging is one of those chores of the library that needs to be done, is never ending, time consuming and at all times needs to be accurate. This creates a dilemma for the school librarians who need to be a jack of trades, and a master of all, in most cases with little or no trained support. It is a vicious cycle - they need to expand their libraries collection through purchasing the new resources but have little time to get it to the point so the end users can access it because they need to catalog it - and who has time for that?

There have been considerable developments over the years to help school librarians reduce the amount of time they need to do original cataloging - SCIS in Australia, OCLC in the US and other countries and many counties in the US have their own OPACS accessible by all the district schools. These services are liberating for those schools who have a community environment such a county or district which is supportive or even a total government policy which makes these services free. What about schools who do not have these support mechanisms in place - the ever expanding number of international schools who work in isolation in countries far away from their home country who have resources from many parts of the world but who do not receive any aid from any government? What about schools in lands that do not have the sophisticated OPACs available in their countries? What about the schools that simply cannot afford to access these ready to download records? With the current globalization of information and technology through the internet there is a vast opportunity for use of and collaboration with sophisticated OPAC services for a low price, or even free, to liberate the school librarian from the cataloging burden, so they may utilize their time more effectively in service to their clients in supplying and making sense of information.

This workshop addresses a number of alternatives that School Librarians can use to reduce the time and money they spend on original cataloging whilst maintaining the integrity of the cataloging standards. These include:

- Original cataloging
- Copy cataloging
- Cataloging from CD ROM records
- Cataloging databases
- Z39.5 Software available.

Original Cataloging

The librarian performs original cataloging by inputting a new master record, cataloged according to AACR2 1988 rev. and current cataloging practice.

This is slow and sometimes inaccurate if you haven't spent years training to be an original cataloger. In my experience in schools, items that need to be original cataloged are left to when there is enough time to do it - and eventually get done when the need arises for those resources. There are so many different types of formats of resources with different requirements that the decision as to what classification number and subject headings sometimes takes more time than it is worth for the non highly trained cataloger. The other important aspect about being a school librarian is that we have other things to do which do not need to include original cataloging. A reflection on the time and resources required in original cataloging is reflected in the costs charged by cataloging companies - if it was an easy job, it would be free.

However original cataloging is sometimes required when the resource can be found no where else. There are a few online helpers to assist in this task, below is one of them

Marc 21 Concise Format for Bibliographic data (Library of Congress)

<http://lcweb.loc.gov/marc/bibliographic/ecbdhome.html>

A brief description of the field and what should go in there and the appropriate punctuations.

The Head Librarian of Hong Kong Institute of Education suggested that no more than 5% of records need to be original cataloged due to the number of services available today.

Copy Cataloging

You perform copy cataloging by modifying an existing record. In the simplest terms this means finding a record that you need, and copying and pasting the information into your OPAC in the relevant places.

Advantages

The records have usually been done by 'professionals' and will be accurate. All the information you need will be there, and you will see where the information needs to go. If you physically visit the OPAC of large libraries such as LC, The British Library and university libraries and copy and paste the records directly from their OPAC, this method is free. This method is suitable for libraries which do not catalog a lot of resources, and which cannot afford to subscribe to a large database or service.

Problems

The time to find the Library OPAC with the record on it. It can take the same amount of time as doing the original cataloging to find the resource and you can only search on one OPAC at a time - unless a few of them are linked for a common reason. The need to ensure the record you are copying is actually the resource you want cataloged. There is also the need to modify the record to suit local requirements.

Some of the Library OPACs we have found useful to copy records from are:

National Library of Australia

<http://webpac.nla.gov.au/webclientmain.html>

Library of Congress

<http://catalog.loc.gov/>

British Library Public catalog

<http://blpc.bl.uk/>

A list of library catalogs from the USA

http://www.sunlink.ucf.edu/faq/marc_download/default.html

Suffolk County Library catalog

www.suffolk.lib.ny.us

For specific local resources, visit the national libraries and universities of the language/resource that you need the record for.

CD ROM Catalog Databases

This service is one where thousands and even millions of MARC records are downloaded onto a CD ROM, the school buys the CD ROMs and searches the database on the CD ROM for the required records, then downloads the information from the CD ROM.

Advantages

These are worthwhile for schools who do not have any reliable online access.

Problems

They are being superceded by the Internet. They are limited to what is on the disc and can be outdated quickly, hence payment for regular updates are required. Require a lot of disc swapping if there is not the possibility of multiple CD loading.

Laserquest is one of the options available, they boast 9.8 million records, they also mention that if a library acquires more than 2500 new resources a year, then it will pay for itself in time saved. Further information on this product can be found at :

GRC International (5 million records)

<http://www.grci.com/whatwedo/library/lquest/index.htm>

Fastcat is another CD ROM catalog developed for Schools (1 million records)

<http://www.wln.com/products/cd-roms/fastcat.htm>

Alliance Plus is another product available for cataloging from CD ROM
1.8 million records with 2 - 4 updates per year. There are a couple of other requirements to be met. about US\$449 . More information can be found at
<http://www.fsc.follett.com/products/alliancepluseonline/sellsheet.pdf>

Online Catalog Databases

These are usually a huge database of records that you can search, access and download records into your system for a fee - sometimes it is just a flat fee per annum, or it could also involve a membership fee and then a charge for every record searched and downloaded, depending on where they get their records from, for the standard of cataloging can vary. Some use a credit system for those libraries prepared to share their records to reduce their download fee, and some hire professional catalogers to input just for their database.

Advantages

The volume of records to search in some of the databases is huge. The service is quick, and usually supported
Use of the internet

Problems

The cost is an annual fee and can be quite high. The rate at which items are cataloged can sometimes be delayed due to the volume. Schools may not need the volume of records to search through and may not get cost effectiveness.

Some of the catalog databases are:

Follett's Alliance Plus Online (3.9 million records) \$249 US Dollars+
<http://www.fsc.follett.com/products/alliancepluseonline/sellsheet.pdf>

Schools Catalogue Information Service (SCIS)
Over 1200 downloads per year is \$900 AUD. Contains over 700,000 records.
Mainly Australian in origin. <http://www.curriculum.edu.au/scis/>

Precision One by Brodart.com
2 million records <http://www.brodart.com>

IT's Marc
US based online based, 15 million records
<http://www.tlccdelivers.com/tlccarl/products/cataloging/itsmarcoffer.asp>

OCLC Catexpress - access to 47 million records
membership fee plus download per record fee
demo tutorial at <http://www.purl.org/oclc/catxtutorial>
<http://www.oclc.org/oclc/cataloging/catexpress/CatExpress.pdf>

MarciveWeb Select
<http://www.marcive.com/HOMEPAGE/web6.htm>
offers a 30 day free trial

AV Access Plus from professional Media Services Corp.
Specifically for AV materials 500,000 records
Free trial version
<http://www.promedia.com/>

Sagebrush
Offers a total package for system operation as well as databases.
<http://www.sagebrushcorp.com/dataservices/databases.cfm>

Z39.50 Software

Z39.50 is a protocol that allows downloading of marc records from one library system to another. It allows users to search one or more collections over the Internet simultaneously, searching by author, title, subject, ISBN, ISSN, LCCN etc. and then downloading the MARC records required into the searchers system. It is the way of the future in copy cataloging and has shown rapid growth since its inception in 1988.

Advantages

A one off fee for the software - no further budgeting required. Huge number of records available, and each record is a free download. Through a selection of target servers, the searcher can narrow the type of library searched, making the search more specific. The records gained are usually recorded by professionals.

Problems

Reliance on the Internet.

There is the possibility of having the Z39.50 software in its raw form from various places

<http://www.loc.gov/z3950/agency/resources/software.html>

but it is probably easier to buy the interface software from a company who has developed a user friendly version. A couple of alternatives are:

eZcat and eZcat pro from Book Systems

<http://www.booksys.com/products/eZcat/eZcat.shtml>

they offer a 15 day free trial, a one off purchase price and then download as many records as you need as long as you own the software. \$595 US / \$995 US site as a one off payment. You can pay \$100 US a year for support and updates. eZcat is MAC and PC compatible.

Bookwhere? 2000 from Follett

offer a 45 day free trial and costs \$395 US

<http://www.fsc.follett.com/products/bookwhere2000/index.cfm>

A list of libraries which are Z39.5 servers can be found at

http://www.sunlink.ucf.edu/faq/marc_download/default.html

This is a list compiled by school librarians who use a Z39.5 interface and receive the highest amount of hits from these libraries - also included special libraries. US based.

A close to complete list of all international targets can be found at

<http://www.indexdata.dk/targettest/>

Conclusion

From the vast array of possibilities in automated cataloging, there really is no reason for school librarians to be doing more than 5% original cataloging. They have the opportunity to use free and low cost resources to help them in this onerous task and to keep their records as accurate as possible. With the advent of the Internet, the world has become smaller, our catalogs can be shared and our libraries have the potential to become worldly places and our students and staff will benefit from these opportunities which free us up for more important work - that of teaching.

Developing the Knowledge Base of the Profession: Research in School Librarianship

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Abstract

This paper reports on one aspect of a wider longitudinal study of "Research and Researchers in School Librarianship". Research articles and conference papers published in English over the ten-year period 1991 to 2000 in the field of school librarianship were analyzed to identify the country of the research, the type of publication in which the research was reported, the research methods used, and the aspects of school librarianship that were investigated. Changes and trends in the research through the decade are described and emerging issues are discussed. The methodology draws on studies that looked at aspects of research in the broader field of library and information science generally, in an international context.

Background

Research in school librarianship is currently "on the agenda" of decision-makers, funding authorities, school systems, and professional associations, for a number of reasons. At a time of cuts in school library funding in places like California (Bell, 2002) and Canada (CBC News, 2002), the question of whether or not "school libraries make a difference" becomes vitally important. While this question is being addressed through research projects that are under way now, the views that people hold about the quality of research in school librarianship will have an influence on the way in which the results of this research are received. Within teaching and librarianship, there is a new emphasis on evidence-based practice, as the success of Ross Todd's virtual conference session at the IASL 2001 conference clearly demonstrated. "Evidence-based practice, where day by day practice is directed towards demonstrating the tangible power of teacher librarians' contributions to schools' learning goals, is critical to the future sustainability of the profession..." (Todd, 2002, p.30). Evidence is collected through, among other things, action research. Action research can "help refine our teaching practice [and] give weight to our beliefs and intuitions" (Buckley, 1995, p.25). Further, school librarians need to engage in "reflection upon research findings and how these findings can improve practice" (Henri, 1998, p.33). And finally, research develops and reinforces the knowledge base of the profession; a strong research climate is important if the profession is to develop strategies to deal with emerging problems and to move forward. As Calvert (1990, p.20) has said, "...research and its outward manifestation as scholarly literature is a vital ingredient of a healthy profession". The ongoing research described in this paper is investigating research in the field of school librarianship, the characteristics of that research, and the people who undertake the research.

A paper given in the Research Forum at the 2001 conference of IASL in Auckland, New Zealand (Clyde, 2001a), provides the background to the research reported here. That paper described a series of inter-linked and mutually-dependent studies that are designed to address various aspects of the broad topic of "Research and Researchers in School Librarianship". These studies are the result of concerns expressed in the professional and research literature about the quantity and quality of research in school librarianship (see, for example, Henri, 1998; Katzer, 1989; Stroud, 1982) and about both those factors that facilitate research and perceived barriers to research in school librarianship (Clyde, 1994). The broad aims identified for the series of studies of research and researchers in school librarianship are:

1. To provide an overview of the current state-of-the-art of research in school librarianship;
2. To compare the current state-of-the-art with the results of similar work undertaken in 1995/1996, in order to identify trends and developments over a decade;
3. To identify the current active researchers in the field of school librarianship internationally, as the basis for a survey;
4. To identify and investigate issues associated with research in school librarianship, including quality/quantity issues and issues associated with perceived barriers to research in school librarianship.

More specific and detailed aims have been developed for each of the studies that have been or will be undertaken as part of the overall research project. The particular section of the research that is reported on here, relates to the first and second broad aims: it takes the form of a longitudinal comparative study of research in the field of school librarianship over a decade, 1991 to 2000 inclusive. A preliminary verbal report of this work (Clyde, 2001b), presented in the Research Forum at the 2001 conference, was based only on data from 1991 to 1995 and 1995 to 1999. The inclusion of the 2000 data in this 2002 paper means that some of the comments made in 2001 for the period to the end of 1999 need to be reconsidered in the light of the 2000 data. Within the broad aims identified for the research as a whole, the aims for this particular aspect of the research are:

1. To identify the places where research in school librarianship (in the form of research articles and conference papers) is reported.
2. To identify any changes over the decade in the type of publication in which the results of research in the field of school librarianship are reported.
3. To identify trends in the quantity of research reported in research articles and conference papers in the field of school librarianship.
4. To identify the countries in which research is being undertaken and published or about which research is being undertaken and published, in the field of school librarianship.
5. To identify the research methodologies that are being used by researchers in the field of school librarianship and to investigate any changes over time.
6. To identify the topics that are being studied by researchers in the field of school librarianship and to investigate any changes over time.

There are some limits to this study, including some that are the result of limits to the earlier work (for example, Clyde, 1996) on which the current research is based. Only published research is being studied, in the form of research articles in professional and research journals, and papers in published conference proceedings and other collections of articles and papers. The reasons for this will be discussed below under "Methodology". The studies are further limited to research published in English, regardless of the country in which the research was carried out or published. The potential effects of these limitations will be discussed as part of the analyses.

Methodology

A detailed description of the research methodologies used for the project as a whole is available elsewhere (Clyde, 2001a); only a summary of the data collection and analysis strategies that relate to this particular aspect of the overall work will be provided here. Important questions that had to be addressed before data collection could begin included "What is research?" and "What is school librarianship?". An earlier study in which the author was involved, of research in library and information science in Iceland (Pálsdóttir, *et al.*, 1994), established criteria for selecting research articles and papers in library and information science generally, while the author's work for a 1996 IASL publication (Clyde, 1996) established boundaries for the narrower field of "school librarianship". An extensive literature review provided background, particularly in the form of studies that had investigated research in library and information science and related fields, and research into particular aspects of library and information science.

The 1996 IASL publication project referred to above, in particular, had a strong influence on the present research: it not only effectively established some of the parameters for the work but also provided some of the data. *Sustaining the Vision: A Collection of Articles and Papers on Research in School Librarianship* (Clyde, 1996) was published by the Association in honour of Jean E. Lowrie. The IASL Board had specified that the articles and papers selected for inclusion should already have been published, and thus, in most cases, have passed through a peer review process. It was also decided at this stage that the book should include only articles and papers published in English in the preceding five years. In addition, it was decided that the articles and papers should describe work carried out within the general field of school librarianship; "material from related fields like school administration, children's literature, audiovisual media, children's reading, and/or public/community library services for young people was to be included only if there was strong evidence of school library involvement" (Clyde, 1996, p.5). The editor's introduction to the book notes that "more than 70 periodical titles (professional journals and newsletters) from more than 50 countries were scanned" for potential articles for inclusion, along with relevant conference proceedings (Clyde, 1996, p.6). Publications covered the years 1990 to 1995 inclusive. The database of articles and papers that resulted, formed the basis for further data collection for the whole period 1991 to 2000.

Studies of research in the field of library and information science in general have been based on a number of different reporting formats, for example research articles and papers (Järvelin & Vakkari, 1990), conference papers (Snelson & Talar, 1991), theses and dissertations (Yontar, 1995; Stroud, 1982), other unpublished research reports (Blöndal, 1997), and entries in databases of current research. In part, the selection of published research articles and conference papers as the focus for the present study reflects the relative accessibility of research reports in these formats, as against theses, dissertations, and unpublished research reports. Entries in databases of current research (such as CRLIS) generally deal with projects in progress and thus are outside the scope of this study, which deals with completed research. The selection of published research articles and papers also reflects a conviction that publication is an important part of the research process for a profession as a whole, as well as an indicator of the commitment of the researchers.

A further consideration in the present study was that the Finnish researchers Järvelin and Vakkari (1990; 1993) have established widely-accepted (Yontar & Yalvaç, 2000, p.41) techniques for studying published research output (in the form of articles and papers) in library and information science, in such a way that the research output can be compared

across time and across countries. Järvelin and Vakkari used their own methodology to study international research in library and information science generally through articles in 37 core journals (Järvelin & Vakkari, 1990). They subsequently updated this work through a longitudinal comparative study (Järvelin & Vakkari, 1993). Researchers who have used their methodology for national studies have included Cano and Rey (1993) in Spain; Pálsdóttir, *et al.* (1994; 1997) and Guðbrandsdóttir, *et al.* (2001) in Iceland; Rochester (1995) in Australia; Layzell Ward (1997) in the United Kingdom; and Yontar (1995) in Turkey. Rochester and Vakkari (1998) compared these and other country studies that used the Järvelin and Vakkari methodology and through their analysis looked at national differences and trends. It was hoped that using the techniques and classifications of Järvelin and Vakkari (as much as possible) to study research in one area of library and information science would mean that the results of this research would be comparable with other studies that use the strategies developed by Järvelin and Vakkari; it also provided an opportunity to test Järvelin and Vakkari's classifications in a specific area of library and information science, namely school librarianship.

For this research on research and researchers in school librarianship, all issues of journals scanned for the 1996 IASL project were again scanned for the period 1995 to 2000, as were the relevant volumes of conference proceedings. Online searches were undertaken of ERIC, LISA, Library Literature and other databases on DIALOG; of selected databases on OCLC; of journals on Emerald and other services; and using Internet search engines. Whenever a potentially relevant article was found in a journal that had not previously been scanned, then the whole run of the journal from 1991 to 2000 was scanned. Published bibliographies (for example, Coleman, 2000; Satija, 1994) and guides to the journal literature (for example, Singh & Singh, 1990) also provided leads to likely articles and papers. Again, if a potentially relevant article was identified in one issue of a journal, then all issues of the journal for the decade were scanned. Information recorded about each article or paper included bibliographic citation, country in or about which the research was undertaken, research methods used, and the topic of the research. Additional notes were made where necessary, for example to indicate where the research had been published previously in another form, or the relationship of the research to a particular project, or any other relevant factors. The articles and papers for 1995 were recorded twice, once in 1996 and once in 2000, as a check to ensure that the data recording techniques were applied consistently even though there was a five-year gap between the 1996 and 2000 analyses. Despite the passage of time, the correlation was 96 per cent over the articles and papers included for 1995.

Reporting Research In School Librarianship 1991-2000

In this section, findings related to three of the aims of this particular aspect of the overall research will be discussed: the places where research in school librarianship (in the form of research articles and conference papers) is reported; the changes over time in the type of publication in which the research results are reported; and trends related to the quantity of research publishing in the field of school librarianship.

In all, 170 research articles and papers in the field of school librarianship, published in English, were identified for the five years 1991 to 1995, and 314 for the five years 1996 to 2000 (an increase of more than 100% on the first five years). A total of 484 research articles and papers were found for the decade as a whole (see Table 1 below). Of those, 389 were research articles, and 95 were research-based conference papers.

Table 1
Research Articles and Papers in School Librarianship, 1991-2000

	1991-1995	1996-2000	Total Numbers: 1991-2000
Research Articles	154	235	389
Research Papers	16	79	95
TOTALS	170	314	484

The large increase in the number of research-based conference papers published through the second lustrum (79 in the years 1996 to 2000, as against 16 in the years 1991 to 1995) can be accounted for by the establishment of the international Research Forums held in conjunction with each annual conference of IASL since Vancouver in 1997. If the 65 papers presented at the IASL Research Forums are removed from the total of papers for 1996-2000, then the remaining number of 14 published papers is very close to the 16 published from 1991 to 1995. Across the decade, the remaining research papers were found in the published proceedings of five conferences — IASL's own conference proceedings, the papers from the School Section sessions at IFLA (International Federation of Library Associations and Institutions) conferences, the proceedings of the Australian Library and Information Association and Australian School Library Association conferences, and the proceedings of the annual "Online Information" conferences in London (see Appendix 1).

Where are the research articles (as distinct from conference papers) published? The table in Appendix 1 shows that in the decade of the 1990s, they appeared in some 55 journals. However, 19 of those journals published only one research article related to school librarianship in the ten-year period, while a further eight journals published only two relevant articles. This means that a considerable number of the research articles in school librarianship are scattered across a large number of journals, some of which are not very well known outside the area where they are published and some of which are hard to find except in major research collections. It can therefore be difficult for people to get an overview of the published research in school librarianship.

On the other hand, just two journals have been the major focus for research publishing in the field of school librarianship: IASL's *School Libraries Worldwide*, and the American Association of School Librarians' journal *School Library Media Research* (including articles published under its former name, *School Library Media Quarterly*). Together these two journals published 32.9 per cent of all the research articles through the decade. This is despite the fact that *School Libraries Worldwide* only commenced publication in 1995, and despite an analysis which shows that only around 54 per cent of articles in *School Libraries Worldwide* were research articles, in terms of the definition used for this project (see Table 2). Clearly, the Association's *School Libraries Worldwide*, which in 2001 became a fully research-based journal, has the potential to be a major force in research publishing in school librarianship in the immediate future.

Table 2
Research Articles in *School Libraries Worldwide*

ISSUE	Number of Research Articles	Number of Other Articles	Total Number of Articles (excluding editorials)
1(1) January 1995	7	-	7
1(2) July 1995	1	3	4
2(1) January 1996	2	7	9
2(2) July 1996	3	1	4
3(1) January 1997	2	5	7
3(2) July 1997	4	3	7
4(1) January 1998	4	2	6
4(2) July 1998	2	8	10
5(1) January 1999	8	-	7
5(2) July 1999	7	1	8
6(1) January 2000	2	11	13
6(2) July 2000	7	1	8
TOTALS	49 (53.8%)	42 (46.1%)	91 (100%)

Note 1: The January 2000 issue was primarily devoted to "A Day in the Life...", descriptive stories from school library personnel around the world. There were only four regular articles in the issue, of which two were research articles. It was thus not a typical issue of the journal.

Geographical Characteristics of the Research Studied

The fourth aim of this particular part of the research project was to "identify the countries in which research is being undertaken and published or about which research is being undertaken and published, in the field of school librarianship". Although the aim is apparently a simple one — to get an indication of the countries that make significant contributions to the research literature — there are problems that arise when research output is analysed in this way in an international context. The "country of research" or "country of researcher" has been defined in different ways in the past, all of which present difficulties, especially in a large project.

Hawkins (2001) in his study of electronic journals, classified articles by "country of origin" of the author, from the address or affiliation given on the article; when this was not available on the article, it was collected in other ways. However, in a longitudinal study, authors' affiliations will change; in addition, some authors write while temporarily affiliated with an institution in another country, and some work in more than one country. It is common for foreign doctoral students in countries like the United States and the United Kingdom to write a thesis about a topic related to their home country and even to publish articles based on it, while still living abroad. There are researchers (including the author) who undertake projects in countries other than the one in which they hold a full-time position. The IASL definition of "country of residence" (the main country in which the person currently works) was of little use for a longitudinal study, particularly so when people were moving to new jobs in other places, or were publishing research about a country after having moved on to a new country. It is difficult to use citizenship as the criterion; in any case, some people have dual or even triple citizenship. Country of birth has been suggested (see Clyde, 2001b) as a way of classifying authors; however, this information may not be readily available for some authors, and in any case there are people who have lived for only a very short time in their country of birth and may not even speak the language of that country. In the end it was decided to use the country about which the article or paper was written as the classification, since this at least gave an indication of those places where the research was richest. However, this means that the people publishing the research may not be resident in that country, nor may they necessarily be a citizen of that country; in addition, an author might do work about

several countries. The patterns behind this will become clearer when the authors themselves are studied in the next phase of this project.

Table 3
Research Articles and Papers 1991-2000, By Country Studied

<i>COUNTRY</i>	<i>1991-1995</i>	<i>1996-2000</i>	<i>Total Number, 1991-2000</i>
USA	73 (42.9%)	128 (40.8%)	201 (41.5%)
Australia	32 (18.8%)	51 (16.2%)	83 (17.1%)
Canada	14 (8.2%)	28 (8.9%)	42 (8.7%)
International	5 (2.9%)	34 (10.8%)	39 (8.1%)
United Kingdom	12 (7.1%)	18 (5.7%)	30 (6.2%)
South Africa	5 (2.9%)	12 (7.1%)	17 (3.5%)
Israel	3 (1.8%)	9 (2.9%)	12 (2.5%)
New Zealand	1 (0.5%)	8 (2.5%)	9 (1.9%)
Nigeria	8 (4.7%)	1 (0.3%)	9 (1.9%)
Sweden	4 (2.3%)	2 (0.6%)	6 (1.2%)
Iceland	2	3	5
Iran	4	-	4
Botswana	-	3	3
Fiji	1	2	3
Ghana	1	1	2
Jamaica	-	2	2
Malaysia	1	1	2
Denmark	-	1	1
Finland	-	1	1
France	-	1	1
Hong Kong	1	-	1
Japan	-	1	1
Kenya	1	-	1
Korea	-	1	1
Latvia	-	1	1
Lithuania	-	1	1
Namibia	1	-	1
The Netherlands	-	1	1
Norway	-	1	1
Papua New Guinea	-	1	1
Sierra Leone	-	1	1
Taiwan	1	-	1
TOTALS	170 (100%)	314 (100%)	484 (100%)

Note 1: Percentages have been given only for the ten countries that were the focus of the most research. After these ten countries, the numbers of articles or papers are very small and percentages become almost meaningless.

Meanwhile, Table 3 gives an indication of the countries about which most research has been published. For 15 countries, there was just one published research article or paper in the ten-year period. Not surprisingly, the United States accounted for more than 40 per cent of the publications, but it was interesting to see Australia second, with more than double the number of publications of Canada. The United Kingdom accounted for only 6.2 per cent of the published articles and papers. One reason for this may be that British research in library and information science is often funded by organisations such as Resource that expect reports in the form of monographs (see, for example, McNichol, Ghelani, Nankivell & Shoobred, 2001; Creaser, 2000; Spreadbury & Spiller, 1999), rather than articles or papers.

The works listed as "international" were of two main types: those where data were collected by the author/s in two or more countries; and those the aim of which was to study an international phenomenon. Among the former were the comparative studies of principal support for school library programs, conducted by Oberg in Canada and Henri and Hay in Australia (see, for example, Oberg, Hay & Henri, 2000) and an article by Tallman and Henderson (1999) that reported on an American project that was replicated in Australia. Among the latter were Knuth's articles reporting on aspects of her study of the International Association of School Librarianship (see, for example, Knuth, 1996), and the author's own study of school library home pages on the Internet (see, for example, Clyde, 1999).

Research Methods Used in School Librarianship

The fifth aim that guided this section of the overall research about "Research and Researchers in School Librarianship" was "to identify the research methodologies that are being used by researchers in the field of school librarianship and to investigate any changes over time". In order to do this, the classification of research strategies developed by Järvelin & Vakkari (1990) was used. This provides the basis for Table 4 (which shows the primary methodologies used for research in school librarianship over the decade) and Table 5 (which provides the basis for a comparison of research in school librarianship with international and national studies of research in library and information science in general). Järvelin and Vakkari also provide a classification for data collection methods; although this was used to analyse the research in school librarianship, lack of space precludes reporting on this aspect here. However, Table 6 reports on the number of data collection methods used in each study over the ten years.

Throughout the decade, the research method most commonly used as the main method for projects reported in school librarianship was the survey (39.1% of the articles and papers over the decade) though it declined in popularity from 45.9 per cent in 1991-1995 to 35.3 per cent in 1996-2000. Overall, this is also a further decline from the period 1987 to 1991, when "more than three-fourths of the research" in school librarianship relied upon one method, the questionnaire survey (Grover & Fowler, 1993, p.243). There is nothing inherently wrong with survey research; indeed it is sometimes the best method for dealing with a particular research problem. On the other hand, over-reliance on one research methodology is unhealthy for the profession for two main reasons: one methodology cannot be used to explore all aspects of research problems; and some problems may never be addressed simply because the survey method could not be used to address them.

The second most commonly-used methodology in the reported research in school librarianship through the decade was qualitative methods (19.6%). Although Table 4 suggests that qualitative methods were used consistently through the decade, a breakdown by year shows that the use of qualitative methods gradually increased through the first five years, but it was not until 1995 that qualitative methods became relatively popular: they were used in five per cent of the published research in 1991; 3.8 per cent in 1992; 13.3 per cent in 1993; 14.7 per cent in 1994; and 33.3 per cent in 1995. On the other hand, they seem to have reached their peak in 1995, though they were used consistently through the second five year-period. Other methods used through the decade included case studies and action research, experimental research, content analysis, and literature reviews, though none were nearly as popular as surveys and qualitative methods. On the other hand, several methods in the

Järvelin and Vakkari classification were not used at all (as the primary method for a project) through the ten years.

Table 4
Research Methods Used in School Librarianship Research
(Classification of Järvelin and Vakkari)

<i>Research Strategy</i>	<i>1991-1995</i>	<i>1996-2000</i>	<i>1991-2000 Totals</i>
Empirical Research Strategy	137 (80.6%)	261 (83.1%)	398 (82.3%)
-Historical method	4 (2.3%)	9 (2.9%)	13 (2.7%)
-Survey Method	78 (45.9%)	111 (35.3%)	189 (39.1%)
-Qualitative Method	31 (18.2%)	64 (20.4%)	95 (19.6%)
-Evaluation Method	-	2 (0.64%)	2 (0.4%)
-Case / Action Research	8 (4.7%)	36 (11.5%)	44 (9.1%)
-Content or Protocol Analysis	6 (3.5%)	21 (6.69%)	27 (5.6%)
-Citation Analysis	-	-	-
-Other Bibliometric Method	-	-	-
-Secondary Analysis	-	-	-
-Experiment	10 (5.9%)	18 (5.7%)	28 (5.8%)
-Other Empirical Method	-	-	-
Conceptual Research Strategy	-	1 (0.3%)	1 (0.2%)
-Verbal Argumentation, Criticism	-	1 (0.3%)	1 (0.2%)
-Concept Analysis	-	-	-
Mathematical or Logical Method	-	-	-
System / Software Analysis / Design	3 (1.77%)	4 (1.27%)	7(1.4%)
Literature Review	11 (6.5%)	11 (3.5%)	22 (4.5%)
Discussion Paper	-	-	-
Bibliographic Method	-	-	-
Other Method	10 (5.9%)	32 (10.2%)	41 (8.5%)
Not Applicable, No Method	9 (5.3%)	5 (1.6%)	14 (2.9%)
TOTALS	170	314	484

Note 1: Järvelin and Vakkari's research strategies classification as presented in Rochester & Vakkari, 1998.

The results of four studies that used the Järvelin and Vakkari classification of research strategies are compared in Table 5. The first is Järvelin and Vakkari's international study of articles in core library and information science journals; the second is a national study of the published research literature of library and information science in Iceland; the third is a national study of library and information science theses and dissertations in Turkey; and the third is the present international study of research articles and conference papers in school librarianship. The two national studies were selected for this comparison because they both included school librarianship as part of library and information science in general. In all four, the survey method is dominant, to the greatest extent in the national studies of Iceland and Turkey and to a lesser extent in the two international studies. School librarianship, though probably overly dependent on survey research, is nevertheless comparatively in a better position than one might expect.

Table 5
 Research Methods Used in Four Studies
 (Classification of Järvelin and Vakkari)

<i>Research Strategy</i>	<i>Järvelin & Vakkari, 1990</i>	<i>Iceland (Guðbrands. et al. 2001)</i>	<i>Turkey (Yontar, 1995)</i>	<i>School Libraries 1991-2000 (Clyde)</i>
Empirical Research Strategy	55.9%	100%	81%	82.3%
-Historical method	10.7%	8.8%	12.7%	2.7%
-Survey Method	22.9%	67.6%	59.1%	39.1%
-Qualitative Method	1.6%	3.0%	-	19.6%
-Evaluation Method	5.6%	-	-	0.4%
-Case / Action Research	3.8%	-	1.82%	9.1%
-Content or Protocol Analysis	1.1%	17.6%	4.55%	5.6%
-Citation Analysis	3.3%	3.0%	-	-
-Other Bibliometric Method	0.9%	-	-	-
-Secondary Analysis	-	-	-	-
-Experiment	1.6%	-	2.73%	5.8%
-Other Empirical Method	4.5%	-	-	-
Conceptual Research Strategy	23.4%	3.7%	-	0.2%
-Verbal Argumentation, Criticism	22.5%	-	-	0.2%
-Concept Analysis	0.9%	3.7%	-	-
Mathematical or Logical Method	2.7%	-	2.7%	-
System / Software Analysis / Design	14.5%	-	3.6%	1.4%
Literature Review	2.7%	-	2.7%	4.5%
Discussion paper	-	-	-	-
Bibliographic Method	-	-	5.5%	-
Other Method	-	-	4.5%	8.5%
Not Applicable, No Method	-	-	-	2.9%
TOTALS	449	34	110	484

Note 1: Column 1: Järvelin and Vakkari's research strategies classification as presented in Rochester & Vakkari, 1998.

Note 2: Column 2: Järvelin and Vakkari studied research articles in 37 core LIS journals.

Note 3: Column 3: Guðbrandsdóttir *et al.* (2001) studied published research in library and information science in Iceland, 1994-2000 (including books, chapters, articles and conference papers)

Note 4: Column 4: Yontar (1995) studied theses and dissertations presented for higher degrees in LIS in Turkey

Note 5: Column 5: The international study of research articles and papers in school librarianship, 1991-2000 (Clyde)

Note 6: All results are reported in percentages because Järvelin and Vakkari, in their original study (1990) used percentages only, with the total number of items studied noted at the bottom of each column. For the results to be comparable, subsequent studies that use the same methodology are reported in the same way.

There has been more use of qualitative methods in school library research through the 1990s than in librarianship in general; only three per cent of published Icelandic research used qualitative methods, while none of the Turkish studies used qualitative methods. Researchers in school librarianship, in comparison with the researchers in the two national studies, have shown themselves willing to adopt the newer methods of qualitative research. Researchers in school librarianship have also been more willing to use action research and "other methods" (including comparative methods and Delphi techniques, among others). In addition, Table 6 shows that many studies are employing multiple methods.

Table 6
Number of Data Collection Methods Used in Each Research Study

YEAR	One Method	Two Methods	Three Methods	More than Three Methods	Unclassifiable
1991	18 (90%)	-	1 (5%)	-	1 (5%)
1992	21 (80.8%)	2 (7.7%)	1 (3.8%)	1 (3.8%)	1 (3.8%)
1993	21 (70%)	-	5 (16.6%)	1 (3.3%)	3 (10%)
1994	21 (61.8%)	4 (11.8%)	6 (17.6%)	-	3 (8.8%)
1995	36 (60%)	8 (13.3%)	10 (16.7%)	4 (6.6%)	2 (3.3%)
1991-1995	117 (68.8%)	14 (8.2%)	23 (13.5%)	6 (3.5%)	10 (5.9%)
1996	35 (63.6%)	6 (10.9%)	8 (14.5%)	5 (9.1%)	1 (1.8%)
1997	41 (62.1%)	9 (13.6%)	8 (12.1%)	6 (9.1%)	2 (3%)
1998	45 (73.8%)	6 (9.8%)	7 (11.5%)	3 (4.9%)	-
1999	30 (40.5%)	9 (12.2%)	11 (14.9%)	19 (25.7%)	5 (6.8%)
2000	31 (53.4%)	5 (8.6%)	6 (10.3%)	13 (22.4%)	3 (5.2%)
1996-2000	182 (57.9%)	35 (11.1%)	40 (12.7%)	46 (14.6%)	11 (3.5%)
1991-2000	299 (61.8%)	49 (10.1%)	63 (13%)	52 (10.7%)	21 (4.3%)

Research Topics In School Librarianship

The sixth aim that guided this section of the overall research about "Research and Researchers in School Librarianship" was "to identify the topics that are being studied by researchers in the field of school librarianship and to investigate any changes over time". In order to do this, the classification of research topics developed by Järvelin & Vakkari (1990) was used. This provides the basis for Table 7 (which shows the main topics that were the focus for research in school librarianship over the decade). As was the case for the research methods (above), a comparative table was also developed for research topics across a number of national and international studies of research in library and information science in general. Unfortunately the results of this analysis were less clear-cut than those for the research methods, and so, after further work on this aspect, the comparative work related to research topics will be presented elsewhere. In this section of the paper, only the analysis of research topics in school librarianship through the decade of the 1990s will be discussed.

The research topics classification developed by Järvelin and Vakkari is based on a hierarchical structure of categories and sub-categories that cover the broad field of library and information science. Järvelin and Vakkari used it in their own studies (1990; 1993), and it was used (with adaptations for the local setting) by Cano and Rey (1993) in their Spanish study. Some other researchers, however, have used only the main topics in the Järvelin and Vakkari classification, either because of the small number of research publications being analysed (for example, Pálsdóttir, *et al.*, 1997) or for brevity in reporting (for example, Yontar & Yalvaç, 2000). Although the research articles and papers in school librarianship were analysed for this present study using the full classification, the results are reported here using the main topics, for the sake of brevity.

Table 7
 Research Topics in School Librarianship
 (Classification of Järvelin and Vakkari)

<i>Research Topic</i>	<i>1991-1995</i>	<i>1996-2000</i>	<i>1991-2000 Totals</i>
The Profession	15 (8.8%)	34 (10.8%)	49 (10.1%)
Library History	1 (0.6%)	4 (1.3%)	5 (1%)
Publishing	-	-	-
Education in LIS	8 (4.7%)	14 (4.5%)	22(4.5%)
Methodology	-	-	-
Analysis of LIS	2 (1.6%)	2 (0.6%)	4 (0.8%)
Library & Information Service Activities	16 (9.4%)	30 (9.6%)	46 (9.5%)
Information Storage and Retrieval	4 (2.4%)	2 (0.6%)	6 (1.2%)
Information Seeking	17 (10%)	25 (7.9%)	42 (8.6%)
Scientific & Professional Communication	1 (0.6%)	-	1 (0.2%)
Other Aspects of LIS	19 (11.1%)	25 (7.9%)	44 (9%)
Other Studies	-	1 (0.3%)	1 (0.2%)
Added: National Survey	5 (2.9%)	12 (3.8%)	17 (3.5%)
Added: Information Skills/Literacy	35 (20.6%)	79 (25.2%)	114 (23.6%)
Added: Principal Support	2 (1.2%)	15 (4.8%)	17 (3.5%)
Added: Information Technology	23 (13.5%)	29 (9.2%)	52 (10.7%)
Added: Censorship	8 (4.7%)	6 (1.9%)	14 (2.9%)
Added: Reading & Reading Promotion	14 (8.2%)	36 (11.5%)	50 (10.3%)
TOTALS	170	314	484

It is clear from Table 7 that Järvelin and Vakkari's research topics classification is not a particularly "good fit" for the published research in school librarianship in the period under study. Six topics have been added to the classification to accommodate important areas of research in school librarianship, while nine per cent of all research articles and papers are classified under "Other aspects of LIS". It is tempting to say that this is evidence that school libraries are significantly different from other kinds of libraries; however, it may be just that the research priorities in school librarianship are different. Some of the national general studies based on the Järvelin and Vakkari methodology have added additional topics to the classification to take account of local research emphases (for example the addition of research in reading for the Icelandic study of Pálsdóttir, *et al.* 1994). However, none of the national studies made additions on the scale that were necessary for this study of school librarianship research.

In their international study of research in library and information science in general (1990), Järvelin and Vakkari found that the most popular areas of research were information storage and retrieval (29.2%) and library and information service activities (27.2%). In this present international study of research in school librarianship, the most popular area of research was information skills and information literacy (23.6% over the decade). Järvelin and Vakkari include "user education" in their category of "Library and information service activities", and while some of the school librarianship research could be classified there, the information skills and information literacy research that is being undertaken in the field of school librarianship goes well beyond library (and information) user education. It also goes beyond the "information seeking behaviour" that is part of the "Information seeking" category. The emphasis on information skills and information literacy research increased through the decade, too, from 15 per cent of the total in 1991 to 24.1 per cent in 2000 (and reaching a high of 27.9 per cent in 1998). Further, the emphasis seems relatively new: in their

study of school librarianship research from 1987 to 1991, Grover and Fowler (1993) found only 33 of 153 studies dealing with school library clientele, of which only a few focused on "learning information skills" and related topics.

Other topics that were each the focus of more than ten per cent of the studies through the 1990s were information technology (while aspects of information technology are catered for in various parts of the Järvelin and Vakkari classification, and some studies were placed there, many of the studies of information technology in school librarianship took a much wider approach, covering IT as a whole), reading and reading promotion in the context of the school library (again, taking a wider approach than that implied in the category "Library and information service activities"), and studies of the profession (in particular, studies of the role or characteristics of the school librarians). Principal support for school libraries was added to the classification because the research that is being undertaken in this field does not fit easily into any part of the Järvelin and Vakkari classification. Research on censorship in relation to school libraries has been a minor but ongoing concern through the decade. The national surveys of school libraries that are so important for planning, stand out because of their wide-ranging approach and their methodology. In addition, the topics included in the Järvelin and Vakkari classification "Other Aspects of LIS" give an indication of the different research concerns in the field of school librarianship; among other topics, we find school library standards, central support services for school libraries, school and public library cooperation, national and state school library policy, cooperative planning and teaching in the school, and international aid to school libraries in developing countries.

Discussion

The classifications developed by Järvelin and Vakkari (1990) proved useful as a tool for analysing research methodologies employed in school librarianship over time and across national boundaries. The classifications were less helpful in analysing research topics, though their use did serve to highlight the different topics that concern researchers in school librarianship as against the research in library and information science as a whole. The application of these widely-accepted classifications to research in school librarianship provided a means for considering research in school librarianship in a wider context.

This study of research in school librarianship shows that the amount of published research (in the form of journal articles and published conference papers) has increased more than one hundred per cent over the decade 1991 to 2000. However, it would be wrong to conclude that this represents a proportional increase in the amount of research actually carried out through the period. A parallel analysis (in progress) of the authors of the published research suggests that there are now both more authors publishing the results of school library research and the more prolific of those authors are publishing more. Again, though, it would be wrong to conclude that this represents a proportional increase in the amount of research undertaken by each author. What we are seeing evidence of here is an increase in research publishing; further analyses would be needed to confirm that these results represent more research actually being undertaken.

This documented increase in research publishing may be influenced by a number of factors. The establishment of several research grants in the field of school librarianship (including the two research grants offered each year by IASL, and those offered by the American Association of School Librarians and the Canadian Library Association) usually carry the expectation the results of the research will either be presented in the form of a

conference paper or as an article in the Association's journal. There are now more places in which research in the field of school librarianship can be published: for example, IASL's research journal *School Libraries Worldwide* was established in 1995, and the series of Research Forums associated with the annual conferences, in 1997. The American Association of School Librarians' professional periodical *School Library Media Quarterly* became a research journal under the title *School Library Media Research* (in 1999). A number of other professional journals have established regular research columns (for example, *Access* and *Scan* in Australia and *Knowledge Quest* in the United States). In addition there are wider trends at work that are reinforcing the need to carry out and publish research, including an emphasis on action research and evidence-based practice in education.

This research project has not so far addressed the issue of the quality of the research that is being published in the field of school librarianship, though it is an issue that has to be faced if we expect that the profession's research will influence decision-makers. Between 1991 and the end of 2000, only a relatively small proportion (58 articles of 389, or 14.9%; see the table in Appendix 1) of the research articles in school librarianship were published in journals that are on the ISI (Institute of Scientific Information) Master Journal List (an indicator of quality that is accepted by many universities for purposes of faculty evaluation). However, this Master Journal List omits the two major research journals in the field of school librarianship, *School Libraries Worldwide* and *School Library Media Research*, both peer-refereed journals of obvious quality, that attract articles from the best-known researchers in the profession.

There are indicators of problems with research quality across a range of fields (not just in school librarianship). Some of those problems are blamed on the very factors that are sometimes seen as indicators of progress, such as the amount of research publishing and the increase in the numbers of places where research can be published (Katzer, Cook, & Crouch, 1997, p.6). For example, Danish research has shown that increasing pressure on academics to publish and systems that reward those who publish the most (regardless of quality) are leading to recycling of research results and multiple articles being published about the one project (Jongsma, 2001). This means that the number of publications appearing each year becomes a less reliable indicator of research actually undertaken, while at the same time it raises questions about the overall quality of what is published.

On the other hand, there are also indicators of progress in research in the field of school librarianship. Haycock has described "a rich body of research in school librarianship" (Morton, 1997, p.31), and has promoted it through his *What Works* book (Haycock, 1992) and "What Works" columns, which summarise current research findings of interest to school librarians. This present study of research in school librarianship has suggested some signs of progress in the last decade. Not only is the number of articles and conference papers published each year increasing, but a greater range of research methodologies is being used by researchers. While the survey method remains dominant (and has its strengths), other methods are becoming more common. It is also becoming more common for researchers to use triangulation — a range of data collection methodologies applied within the one project to gain a better picture of the phenomenon under study. In terms of research topics, there are studies that are looking at fundamental questions for school librarians, such as the nature of information skills and how those skills are best acquired; apart from that, there is a healthy variety in the topics being addressed through research.

The Next Steps

This paper has reported on one aspect of the wider longitudinal study that is looking at "Research and Researchers in School Librarianship". It has provided a view of trends in research in our profession over a decade, with a focus on where the research is published, the topics that are researched, and the methods used by researchers. The next stage of the ongoing project will take up other issues raised in the paper presented as part of the Research Forum at the 2001 IASL conference (Clyde, 2001a). In particular, it will investigate the researchers themselves, their perceptions of the factors that either promote or inhibit the conduct of research in school librarianship, and their ideas about research quality. A set of data collection instruments is under development as this paper is being written; this aspect of the work will be completed by the time the paper is presented in August 2002.

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APPENDIX 1 JOURNALS AND PUBLISHED CONFERENCE PROCEEDINGS FROM WHICH ARTICLES / PAPERS HAVE BEEN SELECTED

Journals¹

Journal	No. of Articles 1991- 1995	No. of Articles 1996- 2000	% Change	Total No. of Articles 1991- 2000	Listed in ISI 2002? ²
1. School Library Media Quarterly / School Library Media Research ³	42 (27.3%)	37 (15.7%)	-7.0%	79 (20.3%)	no
2. School Libraries Worldwide ⁴	8 (5.2%)	41 (17.4%)	7.4%	49 (12.6%)	no
3. Scan	3 (1.9%)	17 (7.2%)	3.2%	20 (5.1%)	no
4. Access	6 (3.9%)	12 (5.1%)	0.7%	18 (4.6%)	no
5. School Library Journal	5 (3.2%)	13 (5.5%)	1.4%	18 (4.6%)	no
6. Journal of the American Society for Information Science JASIS ⁵	4 (2.6%)	11 (4.7%)	1.2%	15 (3.8%) ⁶	yes
7. Emergency Librarian / Teacher Librarian ⁷	5 (3.2%)	9 (3.8%)	0.4%	14 (3.6%)	no
8. Journal of Youth Services in Libraries	9 (5.8%)	5 (2.1%)	-2.2%	14 (3.6%)	no
9. Education Libraries Journal	9 (5.8%)	4 (1.7%)	-2.5%	13 (3.3%)	no
10. Library and Information Science Research LISR	4 (2.6%)	8 (3.4%)	0.5%	12 (3.1%)	yes
11. Knowledge Quest	-	10		10	no
12. Orana	1	8		9	no
13. South African Journal of Library and Information Science	3	6		9	no
14. Library Trends	2	5		7	yes
15. School Libraries in Canada	4	3		7	no
16. Education for Information	2	4		6	no
17. Journal of Librarianship and Information Science	3	3		6	yes
18. The School Librarian	1	5		6	no
19. Australian Library Review	5	-		5	no
20. The International Information and Library Review	4	1		5	yes
21. Library Quarterly	-	5		5	yes
22. The New Review of Children's Literature and Librarianship	-	5		5	no

¹ Note that percentages have been indicated only for the ten journals with the largest number of research articles. After this, the numbers are so small as to make percentages almost meaningless.

² Institute of Scientific Information (ISI) Master Journal List, <http://www.isinet.com/> (April 2002).

³ *School Library Media Quarterly (SLMQ)* was a print journal until 1998, when it became a Web-based journal. In 1999 the name was changed to *School Library Media Research (SLMR)*.

⁴ Commenced publication in January 1995.

⁵ Since 2001, the *Journal of the American Society for Information Science and Technology, JASIST*.

⁶ Special issue, 50(1), 1999: "Youth Issues in Information Science" (three relevant articles).

⁷ Name of journal changed from *Emergency Librarian* to *Teacher Librarian* in 1998.

23. Feliciter	1	3	4	no
24. Scandinavian Public Library Quarterly	2	2	4	no
25. African Journal of Library, Archives and Information Science	3	-	3	no
26. Journal of Education for Library and Information Science	1	2	3	no
27. Journal of Educational Media and Library Sciences	1	2	3	no
28. Libri	2	1	3	yes
29. Australasian Public Libraries and Information Services	1	1	2	no
30. Australian Library Journal	-	2	2	no
31. The Electronic Library	1	1	2	yes
32. Library Review	2	-	2	no
33. Reference Librarian	2	-	2	no
34. RQ / Reference and User Services Quarterly ⁸	1	1	2	yes
35. Swedish Library Research / Svensk Biblioteksforskning	2	-	2	no
36. Third World Libraries	1	1	2	no
37. Asian Libraries	1	-	1	no
38. Canadian Library Journal ⁹	1	-	1	no
39. The Computing Teacher	1	-	1	no
40. Focus on International and Comparative Librarianship	-	1	1	no
41. IFLA Journal	-	1	1	no
42. Illinois Libraries	1	-	1	no
43. Information Searcher	1	-	1	no
44. Information Trends News Magazine	1	-	1	no
45. Journal of the Hong Kong Library Association	1	-	1	no
46. Libraries and Culture	1	-	1	yes
47. Microcomputers for Information Management	1	-	1	no
48. Mousaion	1	-	1	no
49. MultiMedia Schools	-	1	1	no
50. Nigerian Libraries	1	-	1	no
51. Nigerian Library and Information Science Review	1	-	1	no
52. North Carolina Libraries	1	-	1	no
53. Public Libraries Journal	1	-	1	no
54. School Libraries In View	-	1	1	no
55. World Libraries Educational Media and Technology Yearbook 2000 ¹⁰	-	2	2	no
TOTALS	154 (100%)	235 (100%)	389 (100%)	

⁸ The name of the journal changed from *RQ* to *Reference and User Services Quarterly* in 1997.

⁹ Suspended publication October 1992.

¹⁰ Special issue focusing on school library media centers.

Conference Proceedings

<i>Conference</i>	<i>No. of Papers, 1991-1995</i>	<i>No. of Papers, 1996-2000</i>	<i>% Change</i>	<i>Total No. of Papers, 1991- 2000</i>
1. IASL Conferences	8 (50.0%)	65 (82.3%) ¹¹	26.8%	73 (76.8%)
2. International Federation of Library Associations and Institutions (IFLA) Schools Section	1 (6.2%)	11 (13.9%)	6.3%	12 (12.6%)
3. Australian School Library Association (ASLA)	6 (37.5%)	-		6 (6.3%)
4. Online Information Conferences (London)	1 (6.2%)	1 (1.2%)	-4.1%	2 (2.1%)
5. Australian Library and Information Association (ALIA)	-	2 (2.5%)		2 (2.1%)
TOTALS	16 (100%)	79 (100%)		95 (100%)

¹¹ The first International Forum on Research in School Librarianship was held in Vancouver, Canada, in 1997, in conjunction with the 26th IASL Conference; since that year, the International Research Forum has been a feature of every IASL conference.

Learning and the School Library Resource Centre

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Abstract

School librarians are under increasing pressure to evaluate and justify their service provision in terms of benefits to the learner. The research project reported here examines the impact of the school library resource centre on learning. Using a range of focus groups, interviews and case studies, the work identified a range of potential indicators of learning which provide a useful starting point for librarians to begin examining activities in relation to the learner. The study was conducted in Scottish secondary schools between August 1999 and February 2001 and complements empirical work carried out in other countries. All these studies were the subject of a critical review of literature recently completed by the research team. The paper discusses some of the major themes that emerge from the empirical study and were reflected in other studies; such as the impact the library has on formal academic attainment and informal personal achievements, factors that limit the learning and how this relates to the type of library provision in terms of resources and professional expertise.

Context

This paper reports the context, methodology and empirical findings of a research project which examined the impact of the school library resource centre (SLRC) on learning. The aim of this two-phase study was to identify what teachers, pupils and school librarians perceived to be the impact of the SLRC on learning and then to use a framework of perceived learning benefits (developed from the first phase) to examine the actual learning experience, and identify indicators to be used as evidence of learning. The study in Scottish secondary schools was conducted by researchers at the Robert Gordon University between August 1999 and February 2001 and was funded by Resource: The Council for Museums, Archives and Libraries. More recently, work has been completed on a review of literature from the English speaking world to inform Resource and the UK government Department of Education and Skills (DfES) of the evidence which exists on the impact of school libraries on achievement in learning (Williams, Wavell & Coles, 2001 and Williams, Coles & Wavell, 2002). Much of this literature has been widely publicised and, together with our empirical findings, provides a useful pool of knowledge to promote further developments within the profession.

The Impact of the SLRC on Learning project was undertaken at a time of increasing pressure world-wide to measure performance in educational and publicly funded establishments, including libraries and information services. In the U.K. a number of government initiatives meant that this research was particularly timely. The National Grid for Learning (NGfL) and the implementation of information and communication technology (ICT) networks within schools has been the subject of major capital investment since the late nineties, giving rise to further interest in monitoring and independent evaluation. This technology drive provided opportunities for school libraries to become instrumental in implementing and supporting new formats of information delivery. At the same time the government introduced curriculum developments within the Scottish and English education systems to encourage higher educational standards and the nation-wide campaign for Lifelong Learning within and beyond formal education. Again this has provided libraries and information services with renewed focus and a higher profile.

At the time of the research both Scottish and English schools were pursuing the management led issue of quality assurance and benchmarking. In Scotland, the use of performance indicators to self-evaluate the quality of educational provision in school (HMI Audit Unit, 1996) has been paralleled by education and library organisations' attempts to develop guidelines (CoSLA, 1999) and indicators for evaluating the school library resource centre (SOEID, et.al., 1999) within the context of the school as a whole. One key area identified for evaluation is that of Learning and Teaching. However, the task of establishing the contribution of the SLRC to the quality of learning within the school requires an understanding of the relationship between the library-based activities and the learning goals of the curriculum and the school as a whole. From the early days of the research it was clear that this was area of potential challenge for librarians and teachers alike.

Traditional attempts to measure performance in relation to library and information services focus on the measure of *outputs*, in terms of expenditure, resource provision and levels of library use. This approach may ensure *efficiency* of service but does little to enhance professional understanding of *effectiveness* of the service provided and how this can be improved. Evaluation of the impact of the SLRC on learning requires a focus on *outcomes* associated with the learning experience and achievement. In schools this shift in emphasis has posed a number of challenges for the information and library profession as well as the teaching profession. There are significant questions to be asked about the role of the SLRC in relation to effective learning and the means of capturing data which may be qualitative in nature and may not be readily available at the point of service provision. It was hoped that the research would help provide the basis of a practical approach which schools could use as part of their own ongoing evaluation and improvement of the impact of the SLRC on learning.

There is a growing body of research both in the UK and elsewhere which attempts to examine the impact of information and library services in terms of outcomes. Some have considered the impact of information use on decision-making (Marshall, 1992 and Urquhart, 1995) and such research provided valuable points of reference (and contrast) when developing appropriate methods for the study in Scottish schools. Evidence relating to the impact of the school library has emerged from a variety of studies over recent years. The international literacy study conducted by Elley (1992, 1994) and Krashen's work in the US (1993) examine the relationship between reading development and book provision and use and conclude that the school library has an important role in supporting literacy. In the USA studies have begun to look more closely at the relationship between learning and school library provision. The statistical studies conducted by Keith Lance (Lance, et.al., 1993,

2000a, b, c,) and those following his model (Hall-Ellis, 1995, Baughman, 2000, and Smith, 2001) provide compelling evidence of a correlation between school library provision and learning, particularly in the earlier educational years. However, the qualitative studies conducted as part of the Library Power programme (Hopkins & Zweizig, 1999 and Zweizig & Hopkins, 1999) and the research presented here (Williams & Wavell, 2001) explore in more depth the relationship between aspects of provision and the type of learning experience.

In formal education emphasis is placed on academic achievement. The quantitative studies following the Lance model, which demonstrate a statistical correlation between school library provision and achievement in standard attainment tests, are particularly useful in demonstrating the overall impact of the school library in terms which will be understood by policy and decision makers. However, there is potential for more extensive investigation of the broader aspects of learning particularly in relation to libraries and the development of attitudes and skills which will equip students for lifelong learning. In the UK, research is beginning to look at how institutions for informal learning, for example public libraries, museums and galleries, can contribute to student achievement and learning (Train, B. et.al. 2000; Sharp, C. et.al. 2001; and London's Transport Museum, 2001). Schools too are concerned with the broader aspects of learning and for this reason our impact study adopted a broad definition of learning encapsulating the positive attitude necessary to accept learning and develop it further:

"Learning is a process of active engagement with experience. It is what people do when they want to make sense of the world. It may involve an increase in skills, knowledge, understanding, values and the capacity to reflect. Effective learning leads to change, development and a desire to learn more." (Campaign for Learning, 2001)

Methodology

The impact study was set in the context of the Scottish educational system in which professionally qualified librarians, and in some cases with a library assistant, staff secondary school library resource centres. Secondary schools interested in taking part were invited to complete a questionnaire designed to establish whether they were addressing the standards set out by CoSLA (1999) for school library provision. The criteria for the final selection of schools were based on the enthusiasm and commitment of the school and librarian to the project. The first phase of the study used separate focus group discussions with teachers and pupils and interviews with librarians in ten schools to identify their perceptions of how the SLRC can contribute to learning. The second phase used case studies of a range of learning activities associated with the SLRC in six of those ten schools. The case units aimed to establish whether this perceived impact on learning was indeed taking place; identify indicators which might be used as evidence of learning; and examine the process of assessing the impact of the SLRC on learning. For this study learning was considered in its broadest sense and included motivation, progression, independence, and interaction.

The focus groups and interviews provided a wealth of information on SLRC use, on what the various groups *perceived* the SLRC contributes to learning and what factors were thought to influence the effectiveness of the learning process. For some participants this discussion on the school library and learning provided a rare opportunity for reflection. As expected however, the participants found it difficult to identify specific indicators of learning in the SLRC context as opposed to the more formal and stipulated curriculum outcomes. The quality of the discussion varied and was dependent upon numbers and key participants within

the groups and also reflected the status of the school library within senior management agenda.

Detailed notes of the taped discussions were analysed manually and emergent key themes were considered against established educational theory, such as Bloom (1956) and Scottish curriculum guidelines (SCCC, 1999). Although some interesting comparisons could be made between different subject departments or even schools, this was not focus of the study and will not be discussed in this paper. The focus group discussions taken as a whole provided data to develop a framework of perceived learning experiences associated with the SLRC. These were categorised under the headings of motivation, progression, independence, and interaction, reflecting the themes used in current guidelines for evaluating school (and library) performance in relation to 'Quality of pupils' learning' (SOEID, et.al, 1999) and provide a basis for examining learning in its broader context. These themes also reflect categories of learning identified in other educational literature, such as the Scottish secondary curriculum guidelines which stress skills, knowledge & understanding and developing informed attitudes (SCCC, 1999) as well as Bloom's affective, psychomotor, lower and higher cognitive categories (Bloom,1956).

An initial range of potential indicators of impact were developed from these learning experiences and were used during the case studies to take a broad look at the learning associated with the SLRC. Analysis of the focus group data also identified a range of conditioning factors which were thought to impact on the quality of learning and these reflected difficulties experienced by teachers, pupils and librarians, such as time, environmental and financial constraints, and the personality and experiences of the individuals involved. These factors were not generally within the direct control of individual teachers or librarians.

The second phase of the research examined a selection of library-based activities across a broad spectrum of year groups and subject areas, each activity taken as an individual case study. These included student research projects, student librarians and reading promotion as detailed below:

1. English project in which students in the first year of secondary education (S1, aged 12-13) investigated an animal for a piece of functional (factual) writing.
2. Modern language co-operative learning project, with first year secondary students (S1), finding out about various aspects of French culture in small groups, reporting to another group and joining forces to put the collective information together for a further presentation to the whole class.
3. Project using theoretical geography taught in the classroom to second year (S2) students who then gathered information in the library to produce a booklet on natural disasters.
4. A Higher (advanced examination for post 16 year students) level biology investigation requiring background information to support an experimental project of the student's choice for submission to the examination board.
5. Skills course designed to refresh third year (S3) students in the use of library resources and to give practice in study skills, particularly time management, while producing a piece of factual writing on an aspect of healthy living.
6. S1 students reading for pleasure using a variety of methods promoted by the librarian to stimulate interest in a variety of literature genres.
7. Volunteer student librarians (S2-S5) and informal learning through working in and promotion of library duties.
8. Ad hoc use of the library and special events promoted by the library were observed to consider the learning opportunities and the challenges posed for gathering impact data.

A suite of data collection methods and sources (students, teachers, librarians) were used in each case study to ensure triangulation: evidence was collected by means of observation, discussion or questioning, examination of work in progress and finished work, and evidence beyond the immediate situation. The data collection techniques were adapted and refined for each case study, reflecting both the local circumstances and lessons learnt from previous cases. No one method proved ideal and all required care and time for preparation and evaluation and more details of these are available in the full report (Williams & Wavell, 2001).

The research team had intended to discuss the indicators of impact and methods of data collection with the teachers and librarians involved in each case unit to encourage local participation and involvement in the research process. However, this proved less easy in practice. The participants engaged with the research in varying degrees but none were fully confident to 'own' the research and develop it locally. This resulted in a shift in emphasis in the case study approach. Instead of the participating teachers and librarians selecting indicators they felt appropriate for their local circumstances and using those indicators to gather evidence of actual impact, the research team took a more investigative approach to the study. The researchers used the initial framework of possible indicators of impact to establish the nature of the learning which was taking place and how this related to the expected curriculum outcomes.

Research Outcomes: Indicators, Methods for Collecting Evidence

The case studies were successful in establishing a range of learning experiences that the SLRC has the potential to impact upon as well as factors that need to be taken into consideration when planning effective learning. Figure 1 gives examples of some indicators of impact that were used to identify learning within the school library context.

Figure 1
Examples of Possible Indicators of Impact of SLRC on Learning

MOTIVATION	PROGRESSION	INDEPENDENCE	INTERACTION
<ul style="list-style-type: none"> • Expression of enthusiasm • Absorption in task • Continuation of task • Change in attitude 	<ul style="list-style-type: none"> • Use of relevant information • Find appropriate information on Internet • Use of catalogue • Evidence of new knowledge • Higher personal achievement • Reading different fiction genres 	<ul style="list-style-type: none"> • Confidence & competence to continue unaided • Awareness of need for help and confidence to seek help • Ability to apply or transfer skills to new context • Increased self-esteem • Use of initiative 	<ul style="list-style-type: none"> • Discussion about task • Peer co-operation • Friendships • Use of appropriate behaviour

These indicators of learning are not specific to the school library environment and, at this stage, only serve to explain the range of potential learning associated with the school library. Several of the indicators identified during this impact study were also identified by Kuhlthau during the Library Power evaluation study (Kuhlthau, 1999) and taken with evidence of impact from other studies examined in recent critical literature reviews

(Williams, Coles & Wavell, 2002 and Williams, Wavell & Coles, 2001) these indicators have the potential to provide a useful mechanism for librarians to start looking at learning in greater depth. The application of such indicators in the impact study enabled learning to be observed in a broader context than the more traditional focus on the development and application of information skills. Thus, the library was observed to be a motivating force for some students, particularly when computers were involved, and the environment was also observed to provide students with opportunities to develop social and interpersonal skills. Use of the library enabled progression in the learning task by encouraging the development of research and ICT skills: for some students proficiency in aspects of information literacy enabled them to demonstrate independence.

However, there is a complex inter-relationship between all these aspects of learning and this needs to be taken into account when planning and evaluating impact on learning. For example, motivation was identified in the impact research as an important factor in enabling students to progress with specific tasks. Interestingly, while many teachers in the focus groups had indicated that they considered the library to be in itself a motivating influence, it was clear in many cases that this was not enough to encourage real progression in the task and that there was a need for specific strategies to maintain motivation. Small (1998 & 1999) has identified strategies to help motivate students in the SLRC but observation of the case studies suggests that planning for motivation is not always given due consideration in the implementation of activities.

Independence in learning is dependent upon progression, upon students' ability and confidence to proceed unaided. Again it was observed that timely intervention was not necessarily available to ensure students could overcome minor obstacles in order to progress with confidence. Progression and interaction help motivation and interaction is important for some students to progress as well as providing a useful means of demonstrating that progression. In other words, the focusing on a wider range of indicators than the more usual focus on information skills and task achievement, it is possible to gain a deeper understanding of the complexity of the impact of the SLRC on learning. However, such an approach is potentially more challenging in terms of data collection.

The challenges of evaluating impact are acknowledged from other studies looking at the impact of information on the business and professional contexts (Marshall, 1993 and Urquhart, 1995). It is also recognised that valid indicators of impact and the means of monitoring them should reflect the local environment. One of the objectives of this research was to examine how impact might be measured in the school library context and the practicalities associated with various methods. While a range of traditional techniques were used during this study; i.e. discussions, questionnaires, self-evaluation, diaries, observation and examination of written work, some of these methods proved more useful and/or practical than others. Observation provided a valuable opportunity to assess what was happening in the class situation especially when the findings are carefully considered with evidence of previous experience and subsequent written work. However it is recognised that this is impractical on a regular basis when librarians and teachers are occupied with a number of activities during the same session in the SLRC. On the other hand, it was observed during the case studies that teachers and librarians do not make the most of opportunities to discuss observations at the time or reflect on the activities in any detail. In order to make the most of any observation time it is important to have the aims and objectives of the activity clearly identified so that observation and reflection is focused. During one of the case studies an observation schedule was used to give more accurate quantitative measurement and this was

thought to provide a useful basis for a checklist to assess how individuals are coping with itemised tasks, such as library skills.

Open-ended questioning of students using a simple evaluation sheet provided useful feedback both for evidence of immediate impact and for difficulties encountered to enable improvements for future activities. The most successful questions were those asking what was learned, what was enjoyed, what difficulties were encountered. Discussion during the sessions provided useful spontaneous evidence of motivation but also enabled skills, knowledge and understanding to be established at the point of use allowing for appropriate intervention to aid progression.

The use of diaries and critical incident techniques were not as successful in this study as in other research where they have been used (Kuhlthau, 1993 and Marshall, 1993). The reasons for this were not fully identified but certainly the inability of some of participants to grasp the concept of learning in an abstract way may have accounted for some of the problems.

As might be expected some elements of learning are easier to monitor than others. For instance it was easier to examine the immediate learning context, i.e. the work done within the library, rather than the longer-term outcomes. Indicators for progression can be very specific and relatively easily managed within the SLRC context and useful feedback can be gained from being able to discuss progress in relation to curriculum aims and objectives with teachers involved with the activity in the SLRC. However, the use of the library impacts on learning beyond the immediate setting and the study suggested that it is important for librarians and teachers to be aware of the need to take a long-term approach to monitoring impact, examining preceding work and changes occurring after participation in the library activity. For example, in normal circumstances students' completed work is often not available for the librarian to examine, yet in this study useful evidence was gained from examining the "end products" in relation to the work which had been undertaken in the SLRC.

It was also found to be useful to consider looking for evidence of indirect impact beyond the immediate learning activity but again this would be most useful when clear aims and objectives have been identified for a particular activity, such as changes in attitude of student librarians towards school work or improved interpersonal skills, and again specific indicators would need to be identified which express these changes.

The research provides the starting point for librarians and teachers to begin examining the learning experience within their own SLRC by providing a variety of techniques which could be used to monitor the impact on learning. The use of formative assessment and portfolio work is suggested by researchers in the US (Callison, 1993 and Kuhlthau, 1994) but little has been done in this area in the UK where there are no information literacy standards upon which to base such assessment. During the case studies it was observed that the work in progress and finished work did not always reflect the learning taking place in specific library aspects of the information handling process.

The Nature of the Learning Experience: Learning in Relation to Provision And Expertise

The discussion of the learning experience begins with the evidence from the case studies that relates to student academic achievement. Implicit in the curriculum related case studies was the assumption that use of the SLRC would aid the development of research or information literacy skills. This type of library based activity is most closely identified with the 'progression' category of learning and as a consequence, would be expected to contribute to academic achievement. The appropriate use of information was an assumed aim for introducing the library element in research activities and yet this aspect of information literacy appeared to be the most challenging and least understood or recognised by the participating teachers and librarians. Although this was where the teachers and librarians placed the major emphasis within the curriculum related case studies this was not necessarily where the most effective learning was taking place.

It became apparent during the course of the case studies that students responded to the learning situation in three distinct ways:

- those who were not engaged with learning;
- those who engaged and *used* information; and
- those who engaged with the process of *finding* information.

In each case study there were a few students in both of the first two categories. One or two students in each class of twenty-five to thirty were observed to make no effort to find information, to seek help or instructions if unsure of what to do, produced no evidence of work in progress or failed to submit a completed project. These students were not necessarily picked up by the teacher and the reasons for their disaffection was not always apparent or explored, however, when questioned by the researcher these students expressed a lack of interest. A few more students in each case unit settled down to work independently and their work demonstrated an understanding of the processes involved in information handling; such as using a variety of resources, taking and checking notes. These students when tracked submitted finished work of a high standard. The majority of students were 'information finders' who were not really progressing beyond the stage of finding and reproducing information or demonstrating selectivity of resources which would reveal an understanding of the theoretical subject matter.

These 'information finders' were an interesting group because they provided evidence of where difficulties arose and pointers for future targeting of intervention. Some students encountered difficulties navigating particular resources: for example, one student was observed to find a CDROM but encountered difficulties navigating the software until his neighbour intervened. Another two students were observed to locate an appropriate encyclopaedia but had difficulty with alphabetical order and following up the instructions within the volume. Other students were expected to obtain information from a video but experienced difficulties trying to establish the best way to proceed. Another category of 'information finders' appeared to find appropriate information but then failed to use it: for example, several students located interesting details about their animals in case study one but this information was not included in their final work. Few of the geography and biology students demonstrated an understanding of how their theoretical knowledge of the subjects was linked to newly found information. The fact that teachers had not fully engaged with the impact study meant that it was difficult for the researchers to establish the nature of these omissions; whether students had made a deliberate decision to omit information located,

whether they failed to interpret the relevance, or whether the information was just forgotten due to a lack of study management skills.

Students who encountered difficulties with the information process at critical learning points were identified as losing focus, developing coping strategies and finding accidental or unsought solutions to problems. This led to the identification of factors which appeared to inhibit (or conversely enhance) the learning experience, such as: a lack of motivation; a lack of the required skills and/or knowledge to proceed; a lack of confidence in ability and understanding to enable independent progression and a lack of timely intervention or interaction by the teacher, librarian or peers.

The factors identified as potentially inhibiting or enhancing the quality of learning during the focus group discussions centred on issues to do with management input issues of finance, time, environment. However, the factors observed to be inhibiting learning during the case studies were more directly related to the learning process and this was not necessarily recognised by the participating teachers and librarians. Throughout the case studies, students were observed to interact and show renewed interest when intervention was forthcoming from the teacher, librarian or peers, although one or two students were also observed not to respond positively to teacher intervention. Students were observed to struggle to establish focus at the beginning of sessions if they had not been given the opportunity to review and reflect on previous progress. Several students were observed to encounter difficulties when they failed to read or understand required instructions or concepts. The research identified critical learning points in each case study where timely intervention would have facilitated progression to the next stage of the task. Although the participating teachers and librarians mentioned use of the SLRC as providing opportunities for motivating students and encouraging interaction, this was not always followed up during the sessions and evaluated as part of the final discussions. The range of factors which influence the effectiveness of learning in the SLRC illustrates the need for careful planning and evaluation of library-based activities. However, to be effective there is a need for greater dialogue between teachers and the librarian; shared understanding of how the SLRC contributes to the whole learning picture; and more depth of understanding of the information handling process and how it relates to curriculum goals.

Other quantitative and qualitative studies investigating the impact of the library provision on academic achievement (Lance, et.al, 1993, 2000a,b,c; Smith, 2001; Zweizig & Hopkins, 1999) suggest that academic standards are higher than in schools where the library has professional staff, is well stocked with a quantity and variety of quality materials and there is effective collaboration between the library and teaching staff. The selection of schools in the impact study ensured that these participating libraries were staffed by qualified librarians, that the stock was of a sufficient if not high standard and that library provision was valued by the school as contributing student learning. Yet, exploration of the learning environment and use of the indicators for progression and independence would suggest that essential factors were not necessarily present or effective in the library-learning equation. The identification of influencing factors goes some way in explaining the possible problems. Many of these related to collaboration (or lack of it) between the teacher and librarian and their mutual understanding of the aim, objectives and learning processes associated with library use. Taken together with evidence from other studies it would appear that this is an area at which to target further research and development.

In the case studies concerned with wider learning issues - reading for enjoyment, volunteer librarians, special events and the pursuit of personal interests - the learning was often less tangible, less immediately apparent and less directly related to the formal acquisition of skills, knowledge and understanding, i.e. progression. The case study examining the library's role in promoting reading for pleasure provided clear evidence that students were encouraged to read more books and a wider variety through the planned interventions and support provided. This evidence was gathered through open and closed questionnaire responses and was also clear in the increased interest in the award system developed by the librarian. Limited exploration of the library management system also indicated that students were influenced in their borrowing habits by discussion of books either during library sessions or informally between peers. The nature of the case study and lack of teacher involvement did not allow for fuller examination of formal reading and writing development or progression in this case.

The idea of ad hoc use of the library for personal interests and librarian involvement in special events - in this case hosting visiting authors, a space fair and a Times Education Supplement Newspaper Day - is to motivate and stimulate student interests beyond formal education. The scope of this research could not provide substantial evidence of impact because the methodology was designed as exploratory. However, there was limited evidence that events such as these can impact on individual students in subtle ways which might easily go undetected because the evidence lies outside the context of the library. For instance, one student talked to a visiting author about entering a story for a literary competition, another student enquired about joining the local astronomical society after the space fair, and yet another indicated to the researcher that he would like to use his experience of writing the newspaper to enter a career of journalism. These are small indicators of impact and this research has only begun the process of trying to establish methodologies and techniques for monitoring the impact of such *ad hoc* use of the SLRC.

The student librarians were given the opportunity to describe their learning experience in diary format as well as through informal discussions with the researcher. They all found it difficult to express what they did in terms of learning but observation during their duty sessions and limited observation and discussion of how this interacted with lessons provided useful insights into significant contributions to learning. The librarian in this case study school gave volunteer librarians a great degree of freedom and responsibility to develop their own ideas and duties. This provided numerous opportunities for the acquisition of new skills, particularly ICT, and in turn the confidence and ability to share that knowledge with other users. This was particularly apparent when some of the second year student librarians were involved with class research projects requiring a Power Point presentation. When guidance teachers were approached for insights into changes in attitude and self-esteem in these students, most were cautious in their responses. However, two teachers commented on an improved attitude towards school in general and increased self-esteem in one particular student since his involvement with the SLRC. This case study and the action research carried out by Dyer (2001) would suggest that if the involvement of student librarians is carefully considered, planned and monitored that substantial contributions can be made to both the development of skills and the less tangible affective and interpersonal aspects of learning.

These case studies suggested a substantial amount of informal learning was taking place within the context of the library but that this is often overlooked or not given significant consideration. The literature reviews identified a number of other specific studies (Balaam, 1997, Dyer, 2001, Hopkins, 1989, McNicol, 1999, Murraray, 2000 and Small, 1998 & 1999)

which contribute to our understanding of the impact of the library in these wider aspects of learning.

Conclusion

The research project provides a timely examination of some of the issues facing school librarians in their need to investigate at a local level the impact their services have on student learning. The findings of this study contribute to the accumulating evidence that the school library can contribute a great deal to both formal and informal learning given appropriate understanding and intervention. The large quantitative studies conducted in Colorado or Texas (Lance, et.al.1993, 2000a,b,c and Smith, 2001) examine academic achievement in relation to the school library resource centre; the IEA international studies (Elley, 1992, 1994) investigated reading development and suggest the importance of resource provision for school aged students; the large scale qualitative studies (Hopkins & Zweizig, 1999 and Zweizig & Hopkins, 1999) supported by the Information Power standards (AASL & AECT, 1998) consider a number of aspects of school library use and incidentally the impact this has on learning; or small scale action research projects which look at specific aspects of learning such as Murray's (2000) investigation of students with disabilities. The potential learning experiences and indicators of impact provide one way to take the evidence further by inviting librarians and teachers themselves to use and adapt them for their own particular situation.

The study also confirms many of the challenges already identified when attempting to integrate two areas of professional expertise without a real dialogue or common understanding of the issues involved. Many of the issues that were identified during the impact of the SLRC on learning project will already be well recognised within the international field of school librarianship. The study confirms the importance of teacher-librarian collaboration based on shared educational and learning goals but has perhaps added to our understanding of the complex impact which such collaboration (or lack of it) can have on the learner's experience.

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Real World Research - Using Collaboration between Researcher and Practitioner to Maximize Research Outcomes

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Abstract

This paper focuses on the relationship between researcher and practitioner, and discusses the mutual benefits to each. Janet Murray's doctoral research used case study as a primary research technique. One of the case study schools was Essendon Keilor College in Victoria, where Barbara Bugg was then Head of Curriculum Resources. Both authors realised the benefits of working together and felt that it was important to communicate to others how the process worked. The paper will discuss the factors that contributed to the development of an excellent working relationship between the research team and the school library staff. Methods of effective communication, provision of feedback and dissemination of research results throughout the school are also described.

Introduction

Janet Murray's doctoral research used case study as a primary research technique. Methodological triangulation was achieved by using multiple case studies and document analysis alongside a longitudinal survey approach. Fourteen primary and secondary schools in two Australian states, Victoria and NSW, participated as case studies in the project that evaluated school library service for students with special needs in mainstream schools. One of the case study schools was Essendon Keilor College in Victoria, where Barbara Bugg was then Head of Curriculum Resources. Both authors realised the benefits of working together and felt that it was important to communicate to others how the process worked. The results of the research have been disseminated previously (Murray 2000a, 2000b, 2001). This article focuses on the relationship between researcher and practitioner.

The Research Approach

This relationship was the focus of the research design. The key approach lay within the interpretivist paradigm, informed by the reflective research approach advocated by Fook (1996) and Adler (1993) and the emancipatory research approach being applied in the disability field (Abberley 1987, Oliver 1996). Adler (1993) has identified four elements in this type of reflective research practice : awareness and responsibility to the professional

community; attention to the contexts of practice; searching for patterns and anomalies – seeking meanings from experience; and the ongoing spiral nature of research. Adler describes the way in which a researcher working in an area within which they have extensive practical experience, will use this experience to maintain a critical awareness of what is happening in the research arena, and subsequently retrospectively reflect to make sense of what happened. Oliver (1996) explains how past treatment of people with disabilities as research subjects has alienated them from research. Even with an interpretivist approach, there is still a group of “expert” researchers and a group of research subjects, and this can be just as alienating as positivist research. Methodology must also change to accommodate participation and reciprocity. Emancipatory research has a different view of knowledge and aims to

...illuminate the lived experiences of progressive social groups; it must also be illuminated by their struggles. Theory adequate to the task of changing the world must be open-ended, non-dogmatic, informing, and grounded in the circumstances of everyday life.

(Lather 1986, p.262.)

Emancipatory research enables people to change by encouraging self-reflection and a better understanding of their particular situations.

The study was also informed by the work of Carr & Kemmis (1986) in attempting to develop a research approach to suit the educational setting. Although their preferred approach is action research, which was not undertaken in this study, their deliberations concerning the relationship of the positivist and interpretive approaches to educational research have relevance to a decision to use a methodology that involved both. They say

...it is clear that what is required is a view of educational research which is both ‘interpretive’ and scientific. ‘Interpretive’ in the sense that it generates theories that can be...utilised by practitioners in terms of their own concepts and theories; ‘scientific’ in the sense that these theories provide a coherent challenge to the beliefs and assumptions incorporated in the theories of educational practice that practitioners actually employ.

(Carr & Kemmis 1986, p.118)

The close relationship between research and practice in the field of librarianship favoured the reflective research approach that could be employed in the case study technique. The researcher’s experience as a school librarian and a library educator enabled her to interpret her observations and data collection in schools with expertise. She was regarded by some school librarians in case study schools as an expert in the field. Therefore they might ask for advice, or initiate an informed discussion as to how they might approach the management of services to students with special needs. In many instances school librarians would comment that the very presence of the researcher in the school was an awareness raising activity in itself. Thus once the researcher became involved in the case study school, she was bordering on being a participant observer, and was certainly following the interpretivist and at times the emancipatory approach in her research.

The researcher also focussed on the influence of research findings on practice, based on the ideas of Argyris and Schon (1974). In case study schools, the investigation aimed to identify whether the espoused theory of school librarians and special educators, and others, in relation to phenomena related to the study were in fact the same as or different to their theory-in-use. Thus observation by the researcher and accounts of actions by other people would inform this line of enquiry. There was a conscious effort to provide feedback to schools, not only in asking for comments on interview transcripts, but on other research

outputs such as journal articles and conference papers. These were sent to school librarians in case study schools and to bodies such as the Catholic Education Offices, with an encouragement to disseminate these to school staff who had participated in the study and to other interested persons.

Future Research

These types of research approaches could be used more widely in school library research. At a time when more research needs to be done in schools, school librarians may be encouraged to participate in research activities. The interrelationship between research and practice is vital – these two cannot be separated, and the need for practitioners to be involved in research and for research to be done with reference to the “real” world is paramount. Practitioners can gain assistance with solving workplace issues and problems; receive assistance with developing new skills and knowledge; and becoming aware of new ideas or emerging research and using these to develop and change service provision and improve management approaches. For researchers, initiating research projects which have a practical as well as a theoretical approach ensures that work is credible, meets accountability and produces outcomes which benefit the profession as a whole.

There were several reasons why the involvement of Essendon Keilor College in the Monash University project worked well. Firstly Barbara Bugg and Janet Murray had worked together as lecturers in Information Management at the University of Melbourne, so they had an excellent previous working relationship to build on; secondly the Principal of the school supported the project and the Special Education Department were keen from the start, due to Barbara’s “selling” of the project; thirdly, the research design took into account Janet’s skills and expertise. She had been a practicing school librarian and had also held positions involving liaison with school libraries. As a lecturer in Information Management, she had taught in and been involved in course design for various courses offering qualifications in school librarianship, as well as conducting prior research in the area. Thus she was able to identify with the management of a school library and the role of the school librarian.

Obviously good working relationships such as this can be the foundation for collaboration in research, but there are other situations that foster collaborative programs. Most of these are founded in the professional networking that takes place between schools of librarianship/information management and relevant professional associations. Both library educators and researchers, and practitioners have a professional interest in developing good channels of communication in a variety of ways. These include: participation in conferences; attendance at professional meetings; the use of practitioners as guest lecturers; the involvement of library educators/researchers as consultants; the development and continued support of alumni associations; work experience placements of librarianship/information management students. A study by Bridgland & Hazell (1992) investigated how well these avenues were used in both Australia and Canada. It was found that all these avenues were well used but in different ways, some positive and some negative. One example was the use of practitioners as guest lecturers in librarianship/information management courses. In the best practice scenarios this came about because schools wanted to involve practitioners as much as possible in their courses, and facilitate communication between practitioners and students. In some schools, use of practitioners in this way might “...indicate that the school is understaffed or has an inappropriate mix of staff expertise” (p.23).

However the opportunity for collaboration arises, there are benefits for all involved.

Benefits for the Practitioner

A research project can be a very valuable link to the academic world and was useful in the school context as well. In the research project that is described in this paper, the practitioner was initially interested because she recognised that services for students with disabilities was becoming an important area, and she welcomed the opportunity for some evaluation to be conducted.

Essendon Keilor College is a multi campus school. There were two disabled students at the Senior Campus, one of whom was confined to a wheelchair. There was also another student who used wheelchair at a Junior Campus and eventually this student would come to the Senior Campus. Several other students across the school had learning disabilities or intellectual disabilities, and there was also a Support Unit for autistic students at one of the junior campuses.

A new library at the Senior Campus had just been constructed when the approach was made to the school to become involved in the research project. In fact the collaboration provided the school with a consultant with significant experience in library service for people with disabilities. She was able to advise on the physical set up of the new library, and on various policy issues. The evaluation of course also provided valuable data on how well the library was catering for a range of students with various disabilities and learning difficulties. The researcher interviewed students, special education teachers and library staff at all three school campuses. This was something that the school library manager would not have been able to fund or find the time to carry out herself.

There was also some kudos for the school in having the library as a research base from the school's point of view. The school was involved in another project at the time with the Philosophy Department of the University of Melbourne, so a project with another university was seen to be beneficial. It gave the Library credibility in the school. The library was also involved with other research on the impact on school collections and the Victorian Certificate of Education, so this type of involvement was beginning to be part of the scene.

The exposure to researchers was good for the library as well. Observing them working in the library sparked other ideas. Their interviews often raised issues that library staff had not thought about and stirred them into action. It also made them aware of the issues that were being investigated; the disabled students had been considered before but the process was evaluated and that motivated library staff to question whether or not enough had been done.

As it turned out, the research about services for disabled students was extremely valuable in a very practical way when the Administration tried to move the shelving for a launch that was held in the library. The library staff was not in favour of moving this shelving, as you might expect, because it would be a domino effect. If it was seen to be done once, it could be done again and the library space could be invaded more seriously. The one thing that saved all that work, was the fact that there had been a research project from the 'University' that said that the shelves were well positioned. This may seem like a small reason for involving yourself in a research project, but the library staff were very grateful.

Benefits for the Researcher

Finding schools that are willing to participate in research is always a daunting task for a researcher. Many schools fear that the research will take up too much time, it will be intrusive and there will not be any benefits for the school. When the research project described here first started, many hours were spent on the phone, talking to school librarians from schools identified through personal and professional networks. Schools were needed that fulfilled certain criteria – to have a number of disabled students enrolled, to have qualified special education teachers and a library managed by a qualified librarian – and also a school librarian who was willing to participate in the research and a principal who supported the idea! When Essendon Keilor College actually offered to participate in the research, this was a great bonus.

Obviously the previous working relationship between the researcher and practitioner had distinct advantages – there was established trust, they knew one another's methods of approaching problems and challenges, and knew they could work well together. The researcher established excellent relationships with other school librarians at other schools who participated in the study, which was one of the most valuable outputs, but at Essendon Keilor College time did not need to be spent in establishing the relationship with the main participant, although of course it was with other school librarians at the college. Barbara, the practitioner was aware of the significance of the research through her previous experience of dealing with students with disabilities, so she was able to involve the interest and support of the Principal and the Special Education Department on behalf of the researcher, which was a great advantage.

At the time the research commenced, in the Department of Library and Information Studies at the University of Melbourne, one subject taught in the post-graduate course was *Professional Practice and Research*. In this subject, students with good grades were offered the option of assisting a lecturer with a research project as one part of their assessment. Janet Murray had three such students working with her on the research project. These students conducted some of the interviewing at Essendon Keilor College. All were experienced teachers, so the school environment was not new to them, but the opportunity to have professional contact with school librarians and observe library practice was an obvious benefit.

The study as a whole showed that research could have a direct effect on practice. For example, many survey respondents commented that the questionnaire had made them think about what sorts of services they should be providing for disabled students, and that this was helpful. Changes in case study schools were also noticed, varying from redesigning the layout of the library through to the solving of management problems. The researcher sometimes found herself in the role of "consultant" but this was acceptable due to the interpretivist approach to the research. School librarians and special education teachers often asked for advice and the researcher was able to provide this from her own experience but also from information collected from other case study schools, so it was a dynamic process.

Feedback from Research

We have already mentioned how important it is for researchers to liaise with practitioners when conducting any research. When practitioners are very closely involved in research, as in the current example, researchers must give feedback to schools. In this case, this was done by sending copies of interview transcripts for vetting, and providing copies of

any publications arising from the research. Barbara felt she was informed on how the research was going, and that the library staff was helping to drive the research along.

It is also important to disseminate the results of research to the wider audience of practicing teacher-librarians and school librarians. One of the issues around school library research is that much of the research that is done is not reported. Many research projects completed in the course of writing a master's thesis in the area of school librarianship are never reported in the literature. This is a great loss for both practitioners and researchers. Ken Haycock (1992, 1997) has done considerable work to gather together unpublished research of this type in Canada. Library educators and researchers in other countries should consider following this example, and also seek other strategies to ensure the reporting of research.

Although many school librarians have undertaken action research in their own schools, there are great benefits in doing research in other schools rather than their own. This makes it easier to look at the situation critically. Most school librarians participating in the study described found it helpful to have the researcher to draw on as a "critical friend".

Conclusion

The research process is a two way street. The researcher certainly provides the school with benefits. The benefits are not always immediate but in the fullness of time the research can be a valuable tool for the school librarian, the library and the school. The process is not that difficult or time-consuming when the positive outcomes are considered. The benefits to you are not always apparent at the time but will bear fruit eventually, and often in unexpected ways. The resulting research will assist other practitioners and other researchers and contribute to the continued improvement of school library services.

The authors believe that the results of research are not always effectively disseminated to the wider audience of practicing teacher-librarians and school librarians. This is a great loss for both practitioners and researchers, and strategies to improve this situation need to be developed.

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Note This paper expands on a theme briefly explored in a short article in the Australian journal *Access* to be published in 2002.

Research in Children's Information Seeking Behavior

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Abstract

Provides an overview on the significance of studying information seeking behavior of children to enhance the role of school libraries. The literature on children's information seeking behavior is reviewed and integrated into the perspective of school library services. Discussion on the different models of information seeking is presented. Focuses on children's information seeking behavior in the electronic environment. Outlines issues related to children's access and barriers to information. An analysis of research methodology used is provided. Offers suggestions on the future research direction with emphasis on the Malaysian school libraries environment.

Introduction

Research on information seeking behavior is aimed at understanding why and how people use information. The concept of information-seeking behavior, according to Krikelas (1983) is an active process which begins when someone perceives that the current state of knowledge is less than what is needed. Marchionini (1992) describes it as a process in which humans purposefully engaged in order to change their state of knowledge. It is a process of acquiring knowledge. According to Wilson (2000, p.49), information seeking behavior is "the purposive seeking for information as a consequence of a need to satisfy some goal."

A significant body of literature can be found in this area which mainly focuses on the information seeking behavior of adults. Very little is known about the information seeking behavior of children and the techniques that could be used to determine the different aspects of their information behavior in a particular setting. The role of school libraries and other information institutions serving the children population could only be further enhanced if all the services and products offered are designed to meet the information seeking behavior of children. One of the key prerequisites to this is to understand the information seeking behavior of children. This paper attempts to bring together the required information towards a better understanding of the children's information needs and uses by studying the channels of information used, barriers to information, impacts of technology, and the role of information institutions. Finally, this paper provides an overview of the different methods that can be used to study children's information seeking behavior and its related phenomena. Such information would be very useful in the effort towards effectively serving the children population by offering information products and services that are tailored for them.

School Libraries and Children

The development of research activities in the area of human information seeking behavior can be traced back to as early as the 1920's in the U.S. when libraries had already been acknowledged as playing important role in charge of information provision for the community. Earlier studies were conducted mainly to evaluate how effective were the services offered in relation to the users they served. However, it was only after the mid-1970s that most of the research work on information behavior started focusing on the user instead on the services.

The emphasis on user-centered information services have called for more research done in the library and information science field with the goal of better understanding the information seeking behavior of end users. This paradigm shift has also contributed to a significant progress in the research methods used. Thus is evidenced through the shift from the use of quantitative to qualitative research method.

As research in information seeking behavior suggests that there are individual differences in how people seek information, many studies have been done to further investigate how specific groups of library users seek information. Very prominent in the research groups are library users in the academic world such as humanists, scientists, engineers, historians, etc. There has also been a positive trend towards studying the information seeking behavior of users outside the academic world such as the poor, elderly, women, and children. The children population represents one type of information users who are undoubtedly very closely attached to school libraries. As the world of children is partly revolved around their schooling activities, there is no doubt that the school environment plays a major role as an information channel for children.

School libraries, in particular, are important institutions in charge of providing information products and services to school children. In most parts of the world today, including Malaysia, the role of school libraries is becoming more important in preparing the younger generation to face the challenges of knowledge-based society and globalization. School libraries are no longer just fully stacked with books and other printed media, but also electronic information sources. But, are all these enough and useful for the children? Are we serving them with what they want? Who can best give us the answer if not the children themselves. A marketing approach to library services put users at the focal point. The basic rule is, 'know thy users!'. One way of knowing them, is of course by studying their information seeking behavior.

Models of Information Seeking

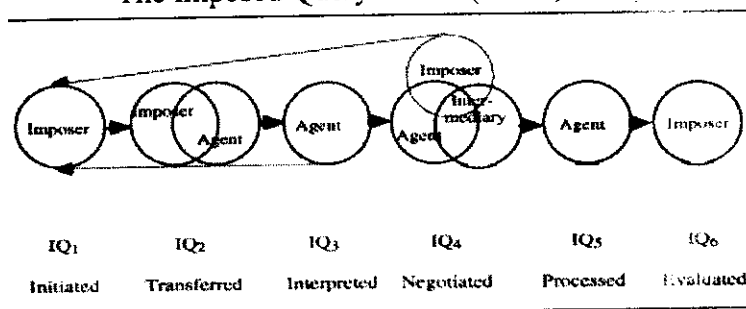
Different models have been developed over the years to represent human information seeking behavior. Although most of the models were based on studies done on adult population, they have also been adopted as a basis to study information seeking behavior of children. Interestingly, the development of information seeking models have demonstrated a trend towards a shift from system-oriented to user-oriented approach. Among important models are Belkin's Anomalous State of Knowledge (ASK) (Belkin, 1980), Dervin's Sense-Making Approach (Dervin, 1989), and Kuhlthau's Information Search Process (ISP) (Kuhlthau, 1989).

How are these models relevant to children? Conceptually, all the models acknowledge that a person must experience a state of 'information need' as a precondition before engaging in an information seeking activity. For example, Dervin's Sense-Making Approach looked at the conceptual and theoretical premises and set of related methodologies for assessing how people make sense of their world and how they use information and other resources in the process. This model suggests that people engaged themselves in information seeking activities when they experienced a sense of discontinuity or gap in the current knowledge about something. Thus, the precursor to information seeking, as suggested by this model and other models, is 'information needs'.

Interestingly, what are the 'information needs' of children? Do children have information needs? And if so, how are their information needs different from other users? In most of the studies conducted, children were engaged in information seeking activities to fulfill class requirements. Realistically, the life of children is not limited within the boundary of school environment. With their very inquisitive minds, children are also active information seekers outside the school environment. There is a lack of research done on children's everyday decision making process and how they fulfill their information gap. As the decision to seek or not to seek information is affected by many factors, the literature does not lead to any concrete evidence as to what are other contributing factors beside classroom assignments that lead children to seek information. Thus, not much is known on how children fulfill their everyday information needs.

Gross (1999) tested the theoretical model of school children's information-seeking behavior called 'imposed query'. Possible imposers in the school environment are teachers, parents, children, and school librarians. Based on previous models proposed by Dervin, and Belkin, Gross proposed a model that describes how children generate queries and how they are presented to an information intermediary (Figure 1).

Figure 1.
The Imposed Query Model (Gross, 1995)



The model suggests that a child's query moves along different stages and the process may be affected by feeling, beliefs, or both. In addition, this model takes into account the role of 'imposers' in the process. For example, the way a student feels about a teacher influences the way the student seeks appropriate answers, and recognizes required answers. The model also recognizes what is called 'double imposed queries' where students impose on parents to do the information seeking for them in the library. In such cases, school children's information seeking can thus be regarded as a shared information seeking phenomenon.

This model supports the general notion in information seeking studies that users exhibit common characteristics of information behaviors at different stages of information seeking process. Worth noting, children's feeling and beliefs towards certain individuals affect their

information seeking behavior. It can be deduced that human intermediaries such as school librarians or media center managers must possess personalities that would encourage and promote a successful information seeking process. System intermediaries such as online or card cataloging systems, in-house or CD-ROM databases must be designed in a manner that is easily approachable by students.

Electronic Environment

The role of computers in schools cannot be disputed. It is a common scene today that school libraries are equipped with computers, supporting services such as the Internet, OPAC, and variety of databases. Hough and Ellis (1997) reported on the "Cyber Space learning for kids" (CLUK) project for children aged 5-16 across Europe with the objective of providing online services such as databases of information and teaching and learning resources. Teachers surveyed expressed that such service would promote children learning by children themselves becoming the researchers and explorers of information. Computers have the potential to provide children with access to vast amounts of information that helps them develop research skills and become independent learners. With the immense potential of electronic sources to provide information, a lot of studies have been conducted that looked at how children seek information in the electronic environment.

The World Wide Web is becoming part and parcel of today's information environment. With its multimedia, hypertext-linking characteristics, the Web is a very attractive information channel for children. Research on children's use of the Web, however, indicated that this user group has cognitive difficulties constructing effective search strategies, and most of them do not use the Web effectively.

Schacter et al. (1998) studied elementary school children's searching behavior in using the Web for fact finding and research tasks. The study found children as interactive information seekers, preferring to browse rather than plan systematic and analytic search strategies. Children experienced difficulty in finding relevant information, and were more successful in finding information on the open-ended task than the fact-finding task. Large et al. (1999) investigated web navigational skills of middle school students and found that they were inefficient in using web and possessed inadequate navigational skills. Bilal (2000) also found that children experienced difficulties searching the Yahoo! search engine designed for children. Large and Behesti (2000) reported that children perceived web accessibility as an advantage to point sources, but found it harder to use.

In another study, Bilal and Kirby (2002) compared the use of Yahoo! by children and graduate students. The study found that age was not a factor that influenced children's information seeking behavior on the web, but it was the ability to recover from break downs, navigational style, and focus on task.

Findings of these studies suggested the importance of training children on web navigational skills. They also need to be equipped with basic research skills, particularly in how to express their information needs and translate their queries in the manner that is acceptable by the different search engines. Children need to adapt themselves to the use of the web and search engines in order to learn new techniques that would support effective web navigation.

The use of online public access catalog (OPAC) by children is also another popular research area. The OPAC is an instrumental intermediary between the students and the library collection. In the early type of OPAC, Edmond, Moore, and Beacom (1990) found 10% success among children who used OPACs with a touch-screen on-line interface. Solomon (1993) in his study found 66% success on standard OPACs. In the Science Library Catalog Project, Borgman et al. (1995) and Hirsh (1997), revealed 80% rate of success of OPAC used by children.

Solomon's study focused on the search moves of children grades 4-6 in using OPAC (Solomon, 1993). The study looked at 5 areas: overall success of children using the OPAC and the reasons for their success or break down; strategies that children used to control the OPAC; interface, and correspondence between children's search terms and the subjects headings used in the database. There was observed change overtime in children's information search using the OPAC. Different search moves were observed being made by students. Children who employed complex search moves were less successful in locating information than children who employed simple moves with concrete concepts. Their failure was mainly due to the use of terminology that did not match the controlled vocabulary used in the OPAC. The following user requirements of OPAC use were proposed: ability to monitor system response; knowledge of appropriate follow-up actions; content knowledge in areas of search; knowledge of formal requirements (punctuation, space); knowledge of requirements for well-formed queries; ability to evaluate focus (subject, title, author, or combination); understanding of intended uses and products of the OPAC; ability to read words in line with interests, and; ability to locate keys on keyboard, spell, and review term entry.

Domain knowledge, or subject knowledge has also been found as a contributing factor to children success in using the OPAC. The Science Library Catalog (SLC) study looked at the effect of domain knowledge on children's success in OPAC use (Borgman et al., 1995). The SLC used the Dewey Decimal-based hierarchical browsing and revealed that children have very little difficulty navigating the hierarchical structure of SLC. However, differences in success rates among children were found to be influenced by domain knowledge, spelling, and vocabulary problems. Hirsh (1997) conducted another study using the SLC, examining the effects of task complexity and domain knowledge in children's success in using the catalog. The children were assigned two tasks: single-browsing tasks and complex browsing tasks. It was also found that, children's domain knowledge has a significant effect on their success regardless of the complexity of the search task.

Children's system knowledge on the type of task assigned also plays a major role in determining successful use of electronic information sources. Marchionini (1989) conducted a study that assigned children two tasks, fact finding and research, using the Grolier's Electronic Encyclopedia on CD-ROM. Despite only being given minimal prior training, children in this study were able to use the full-text database. However, they had difficulty in formulating effective search strategies and were more successful in the open task than in the closed task. Three factors were found to be influencing children's searching behavior and success: the structure of the tasks, cognitive abilities, and level of conceptual understanding of how to use a multimedia encyclopedia.

Large, et al. (1998) studied children's interaction with three types of interfaces using a multimedia encyclopedia. Despite the differences in interfaces, children were able to manipulate the interfaces, but experienced difficulties in constructing effective queries. Large (1993) compared the use of print encyclopedia and its CD-ROM equivalent by

elementary school children. Fifty percent (50%) of the children were able to find texts for complex queries in both sources. As it was not evidenced that retrieval time was shorter in using CD-ROM than its print equivalent, this study revealed that children's information seeking is more significantly influenced by the types of search task (simple vs. complex) than the type of the source used (print vs. CD-ROM).

There were also studies that looked at gender issue in children information seeking behavior. Large et al. (2002) studied how grade 6 boys and girls working in same sex groups retrieve information from the web. It was observed that boys used fewer words when formulating queries, spent less time viewing progress and clicked more hypertext links per minute than girls. Boys also performed more page jumps per minute than girls and were much more interactively engaged with the web in terms of the frequency of mouse clicks. Thus, the study suggests that the group of boys is more active on the web than girls.

Findings of these studies suggest the attractiveness of electronic information sources to children. The role of school libraries in educating students to use these services must be enhanced. Galpin and Schilling (1988) suggested that children need to employ a variety of information skills when using electronic databases, such as collecting and selecting information, sorting and ordering information, applying logical operator, validating information, looking for relationships, and forming and testing hypothesis.

Fasick's study relating to children's use of electronic media concluded that improved hardware design, better communication training for users, and the use of gender-neutral software may all contribute to more effective use of online catalogs, electronic databases, and other computer-aided learning tools by children (Fasick, 1992). Every child must have an equal opportunity to use technology-based information media, more effective hardware and software must be developed, equality of access to computers must be ensured, and more software that meets the educational goals of all students must be developed.

On the information searching skills of students, most findings confirmed that children are active searchers. Their search performance is mainly affected by lack of systematic planning and poor analytic search strategies. Children need to be educated on how to better plan their searches, conceptualize solution paths, and how to organize, structure, manage, and represent information they find. Further research could investigate how web interfaces and research engines can be developed to target a specific gender, how teachers can help children plan and revise their search strategies, and how cooperative work between classmates can be facilitated.

Barriers to Information

This section will look at the various factors that could affect children's access to information. Access according to Buckland (1991), is the means that enable an information seeker or an inquirer to learn or to become informed. To ensure access of information to children, among the barriers that must be tackled are: identification of information sources, cognitive access (understanding), and acceptability.

Students in the study conducted by Large et al. (1998) demonstrated the ability to selectively extract information and to evaluate sources in terms of usefulness as well as enjoyment and ease of use. Schacter et al. (1998) looked at elementary school children's use

of the Internet and found that most children believed that the information found on the Internet was true.

The literature has also identified a few important factors that could become barriers to children information seeking process. One factor is the conflict of paradigms. The Information Search Process (ISP) model proposed by Kuhlthau (1989) is famous for its cognitive approach. This model states that information search process involves the whole experience of the person, including feelings, thoughts and actions. In her study, Kuhlthau observed that most of the failures in library research resulted from the mismatch between the library paradigm and the user paradigm. The bibliographic paradigm of the library is based on certainty and order, while the users' is of uncertainty and confusion. As a result, there is gap between patterns of information provision and users' natural process of information use.

The same conflict can also be found in school libraries serving the children's population. Moore and George (1991) found that students did not have enough information on the function of the card catalogs. The study suggested that the information printed on the card catalogs did not help much in their information seeking process. In addition, they did not have enough knowledge of the relationship between catalog cards, books, and the shelving system. Students also did not have knowledge of the Dewey Decimal Classification (DDC) system used by the library.

The same study also found that children's poor understanding of subject index had resulted in the formulation of general and frequently vague questions. Although they can refer to the use of subject index, this however requires them to both reduce and increase the scope of topic in order to select the most appropriate search term. Thus, students are not only required to have subject knowledge but also knowledge of the various ways in which topics can be recognize and represented in classification systems.

How do children select books? Moore and George (1991) found that the table of contents and indexes were not useful enough in assisting children in the selection process. Most books did not have a proper lay out of the table of contents, and the quality of indexes was not good. As a result, students failed to select relevant keywords that matched with the indexes.

Findings of previous studies also suggest that both domain knowledge and system knowledge factors could significantly influence children's information search process in the electronic environment. Domain knowledge or subject background helps children to conceptualize their information needs. Borgman et al. (1995) and Hirsh (1997), for example, in the SLC study had clearly identified the role of domain knowledge in children's information seeking. When interacting with any information retrieval system, users would need to translate their information needs into the terms that are acceptable by the system. Solomon's study found that children's failure in using OPAC was mainly due to children's use of terminology that did not match the controlled vocabulary used in the OPAC (Solomon, 1993).

Most research findings agreed that children lack the skill on how to formulate search strategies, and do not have a conceptual understanding of the system used. Bilal (2001) observed that children had difficulty with open task or research-based activity compared to fact-finding activity. This signaled a need to provide children with basic research skills. Designers of information retrieval systems for children must take into consideration the

cognitive levels of children and provide the necessary mechanisms that would help children in the search formulation and retrieval process. As children normally do not know of alternative strategies when they encountered barriers during different stages of their information seeking process, they must be equipped with the necessary navigational skills that would allow them to recover from search break downs (Bilal and Kirby, 2002).

Methodology

How do we study children's information seeking behavior? Research applies some set of theoretical and empirical tools to try to increase our understanding of some set of phenomena or events. The main ingredients in research are that they must have some content that is of interest, some ideas that give meaning to that content, and some techniques or procedures by means of which those ideas and contents can be studied. Among the research methods that can be applied are experiments (lab or field), surveys, observations, interviews, focus groups, bibliometrics (content & citation analysis), transaction log analysis, content or discourse analysis. All methods are valuable, but they also have weaknesses or limitations. This suggests that although the different methods enable fact findings, they also limit evidence. To offset the weaknesses of a particular instrument, multiple methods is a common approach in studying children's information seeking behavior.

In studying children's information seeking behavior, it is common for researchers to adopt the multiple methods approach. A general observation is that qualitative research was found to be more suitable in studying children's information seeking behavior. The non-manipulative or non-controlling characteristics of qualitative research help researchers to understand children from their own point of view. This method allows us to examine the dynamics of a process rather than static attributes of a process.

Large (2002) studied how grade 6 boys and girls working in same sex groups retrieve information from the web using a case study approach that recorded on video tape multiple sessions of information recording from the web. A questionnaire was also used to gather demographics data of children.

Paul Solomon, media educator of 1989 for the state of Virginia, was one of the first researchers in the school library media field to use qualitative method (Solomon, 1993). His study of children's use of the OPAC employed a naturalistic approach that applies data collection methods in situation that are as 'actual' as possible. Methods used were observation of children using the OPAC; interviews with children, teachers, the reading specialist, the library media specialist, and volunteers; think-aloud protocols; and documentary evidence. The different methods allowed the researcher to explore and discover patterns of behavior that lead to children's successes and failures in the use of OPAC.

Bilal (2000) investigated the success and information seeking behavior of seventh-grade students using the Yahoooligans! Search engine. This study looked at the cognitive, physical, and affective perspectives of children. Children's behavior was captured using Lotus ScreenCam, their affective states were elicited through exit interviews, while a questionnaire was designed to gather their prior experience in using Yahoooligans! and the web.

Carey, McKechnie, and McKenzie (2001) shared the methodology that would help researchers gain access to the children's population. Their study suggests that it is important

for researchers to gain access to the inside world of children in order to understand them better. Gaining access requires them to share certain 'insider' characteristics. They also suggest that researchers have to take both the roles of insider and outsider of children's information world. However, they cautioned that the following factors must be considered when doing a naturalistic study; respect for participants; respect for sensitivity to participants surroundings, flexibility, time for developing trust, recognition of trust, maintaining trust, role playing, and reciprocity.

Depending on the age of the children, the use of interviews and questionnaires are not recommended for children whose oral and language skills are not well developed. This is among the methodological challenges presented by young school children as subjects in library and information science research. McKechnie suggested the use of ethnographic observation techniques using three methods, that is audio-reading of children's naturally occurring talk, participant observation, and diary keeping by key informants. The drawback of observer effect could be lessened by enhancing subject familiarity with the researcher and equipment, maintaining clear communication, and staying out of direct sight lines.

Moore and George (1991) explored the cognitive difficulties encountered by grade 6 children in New Zealand by using intensive think-aloud sessions. They also conducted retrospective interviews which were recorded on video and audiotapes and further analyzed these with respect to the nature of the library system, books, and children's perception of them.

Large et al. (1998) adopted different methodology where experimental rather than a field environment was chosen to collect qualitative data under controlled conditions. To study the impact user competence on information retrieval design, three identical workstations were installed in the classroom, each with different CD-ROM multimedia titles. Samples of search transactions were captured on videotape and a microphone was also installed to capture both screen images and voices synchronously. Subjects' assignments were marked and their oral presentations were audio-taped. A questionnaire consisting of close and open-ended questions were administered to seek subjects' opinions of the three multimedia sources used.

Borgman et al. (1995) used online monitoring as a technique for evaluating children's use of OPAC. Online monitoring, or transaction log analysis, are computer-based methods of capturing user behavior. This technique could provide useful information for describing patterns of system usage, analyzing frequency, type, and context of actions and errors and recording the amounts of time spent in various stages of a task. However, this technique could only provide extensive detail on what the researcher is doing but no data on why the researcher is doing it. Thus, this technique is normally combined with other techniques of obtrusive evaluation method such as interviews, verbal protocols, direct observation, or playing back the research.

Conclusions

Based on the above discussion, some important lessons can be learned and their implications on research, school library services, and system design are outlined as below:

Research

- There is still a lack of research in the area of children's information seeking behavior in school libraries. Not much is known about children's perception of school library

services, their preferred sources of information, why they engage in information seeking process, etc.

- As most of the previous research was conducted in developed countries, very little is known about the information seeking behavior of children from developing, or less developed countries. In an effort to bridge the digital divide, such studies are urgently needed to better prepare and equip the younger generation with appropriate information skills.
- More research should be encouraged based on the real information needs of children. Not much is known pertaining to children's everyday life information seeking activities and how school libraries can serve them.
- Careful consideration must be given to the methods used to study information seeking behavior of children.
- The focus on electronic information sources has overshadowed children's use of other types of library products and services.
- Cross-cultural studies are needed to investigate the effect of cultural and language background on children's information seeking behavior.
- More studies are needed that focus on special groups of children, such as children with disabilities.

School library services

- The products and services provided by school libraries must be tailored towards the information needs, and information seeking behavior of children.
- Lessening the effect of the 'bibliographic paradigm' in libraries would promote a more successful information seeking process by children.
- Information skills development of children must be emphasized. This includes helping children in defining their information needs, determining the required information, searching information, retrieving information, evaluating information, and presenting information.

Malaysian perspective

- Children's information seeking behavior is still an unexplored area in the Malaysian school library context. The emergence of smart schools and the Malaysian government's vision of building a knowledge-based society would definitely enhance the role of school libraries in Malaysia. Understanding the information seeking behavior of children is deemed necessary to ensure that the products and services offered are useful for them.

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The Cultural Dimension of School Libraries in a Knowledge Society

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Abstract

My research project concerns the cultural dimension of the Danish school library. It consists partly of a theoretical section, in which I try to discover how the school library can contribute to the cultural education of students. It also consists of an empirical section, in which I try to sketch a picture of the school librarians' perception of their own practice as cultural intermediaries. Initially in this paper I will present one small part of the theory and then I will consider one of the questions from a questionnaire used in a survey carried out in the autumn of 2001: activities organised to process culture through the school library.

It Is All About Culture

Danish School libraries have been undergoing rapid changes in recent years. In compliance with the new legislation of 1993 the object and identity of the school libraries have changed. The legislation concerning the Danish Folkeskole (the state school) stipulates that the school library has to function as a 'pedagogic service centre'. The use of that term is an indication of a wish to consolidate the pedagogical functions of the school library as a part of the general activities of the school. The involvement between the school and the school library must be reinforced and developed in such a way that the school library becomes an extension of the classroom. With the new legislation the processing of culture through the school and the school library has also become very important. Emphasis is placed on students having to be conversant with Danish culture.

But what is culture? This is not an easy question to answer. The concept of culture is very difficult to define, and at this juncture I shall not venture into a long account of the extent of its significance or of the many facets of the concept, but only mention that my own understanding has its root in the theory of cultural psychology that considers perception, cognition, values etc. as inseparable parts of culture. The American psychologist Jerome Bruner states his views on the relationship between consciousness and culture in the following manner:

"Culture, then though itself man-made, both forms and makes possible the workings of a distinctively human mind. On this view, learning and thinking are always situated in a cultural setting and always dependent upon the utilization of cultural resources" (1996, p.4)

Thus culture constitutes a mental toolbox, a number of ways to construe one's reality; it is like a pair of mental contact lenses through which we contemplate the world and ourselves.

How, then, will students' minds become 'culturalized' in the school library? How will they get their Danish "contact lenses"?

One answer is: by just being there and being part of the school library's everyday routine. The point is that all of the school library's work can be seen as culturally didactic. The school library has its own particular culture: The school librarian chose the range of printed stories on the shelves that are made accessible to lenders. There are films, CD-Roms, and many other products that are made available for use. Frequently there is art hanging on the walls. Cultural arrangements are put on in the form of theatre performances, visits by authors, the showing of films and much more. School libraries are active in particular ways and occasionally there are explicit rules for these activities. All this culture at the school library is arranged with an educational purpose; the intention is to influence and develop schoolchildren's minds with respect to culture. For that reason it is cultural didactics in practice. I was first introduced to the term 'cultural didactics' by the university lecturer Bernard Eric Jensen at a conference at The Danish University of Education in the autumn of 2000. Here 'cultural didactics' was defined as the didactics relating to the promotion of culture. It is a didactics with both descriptive and normative aspects, in that it seeks to describe and explain how the cultured mind is formed and functions, and it discusses in what way the cultured mind ought to be developed. The term 'cultured mind' indicates that the human mind is formed by the culture it is a part of.

The Narrative

A special feature of the processing of culture is the narrative. In schools the library is the central provider of the narrative. It actively promotes the main narratives in the culture's literary canon, and at the same time the school library is often the place where schoolchildren can experiment in various creative ways with completed narratives – and, importantly, also be productive narrators in a variety of different media.

In addition, the narrative is also a tool in classroom situations in the library, when, for example, pupils work together on and consider the use of literary devices.

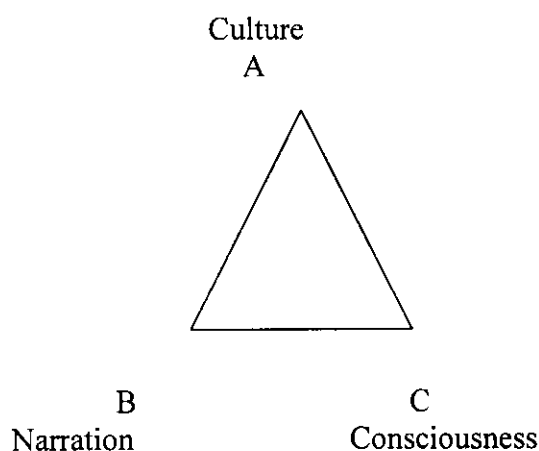
The values of the culture, ways of thinking etc. are incorporated in narratives and transmitted by narratives. And human consciousness is organised as narratives, too.

This is a viewpoint that has been expressed by Jerome Bruner, Kenneth Gergen, Klaus P. Mortensen and Mark Turner, among others. Turner (1996) makes the point quite forcefully: "The story is a basic mental principle. Most of our experience, our knowledge, and our thinking is organised as stories". We are constantly creating stories about our lives and the relations we enter into: about the commuter train home from work, the time the elderly lady fainted, the quarrel with the boss and plans for the impending holidays. The narrative is an account, hence it is used consciously by people to bring structure to the experiences and knowledge they have about themselves and to the world they live in. The narrative is used to make sense of our lives, to understand the world around us and to make ourselves understood by others. As the narrative is determined by culture, it is self evident that humans, exposed to the narratives of a given culture, will come into close contact with

the basic foundations of this culture; they become familiar with this particular culture's particular way of making sense. This may influence thinking. The way people think is expanded and developed in the encounter with other narratives: When your comprehension of the world clashes with divergent conceptions, you create the narrative in an effort to grasp the discrepancy. By thinking in terms of narratives, new stories are created, and these new stories are incorporated into existing cognitive structures. In this way narrative thinking will transform the contents and the organisation of human knowledge and thinking in its way of contemplating and interpreting the world.

A Model of the Cultural Didactics Field

I have constructed this model to demonstrate the relations between culture, narration and consciousness:



The main statement of the model is:

Culture is fundamental to human consciousness, to literature and accordingly to the narrative. Consciousness is organized as narratives. And human consciousness is formed in the encounter with literary texts and other narratives. The model, which has to be seen as a model of the cultural didactics field, has two levels in my project: a theoretical one (level 1) and an empirical one (level 2). In the following I will examine each axis separately and at both levels.

Level 1: the theoretical level

The AB axis: the connection between culture and the narrative

This axis includes theories dealing with the links between culture and the narrative. Thus one dimension of this axis is theories about the fact that the narrative can be seen as an expression of culture and that the narrative is the bearer of the culture's values and modes of thinking. There is also an implication here that there will always be value judgements and evaluation taking place of various narratives in a culture, including the media in which the narratives appear. Young people judge certain narratives differently from school librarians.

The AC axis: the connection between culture and consciousness

This axis includes theories dealing with the links between culture and consciousness. Thus it includes theoretical reflections about how the human mind is formed by the culture. The axis also includes reflections and decisions about in what way the cultured mind ought to be developed.

The BC axis: the connection between the narrative and consciousness

This axis includes theories dealing with the links between the narrative and consciousness. This axis is the main focus in my use of the model, and it is also this axis that is most complex; it consists of several layers at the level of theory:

- the theory of how thinking is itself organised as narratives
- the theory of how the formative processes take place in the encounter between the consciousness and the narrative.
- the theory of and empirical surveys of specified uses by the consciousness of narratives and media.
- A practical dimension comprising a) an encounter between a single consciousness and fictional narratives in various media b) the interaction between the single consciousness and other consciousnesses with the narrative as the medium c) an encounter between a single consciousness and its own narratives in thinking and metacognition.

The practical dimension of my project concerns itself with the BC axis, as the focus is the formation of the consciousness in its encounter with the narrative in the school library. On the other two axes there are a number of reflections and conclusions concerning the teaching of culture, which underpin how the practical dimension on the BC axis is set up. I should mention that the model can be perceived and used in other ways, so that it may operate with the AB axis and the AC axis as practical dimensions.

The projection of the axes onto each other

At a theoretical level the aim of the model is to have interplay between the axes. My focus is, as I have already said, the BC axis and in order to comprehend as best I can and create an image of how cultural education takes place, here I have to project the AB and AC axes onto this axis. On its own the BC axis has, of course, no cultural dimension; it only comes into existence with the projection of the other two axes.

The empirical level

My empirical methods do *not* include studies of practice. I do *not* go out into the field like an anthropologist or an ethnographer and observe what actually happens. So I do not study directly the teaching activities in action in the school library, how new purchases are dealt with, what rules are applied in the library, etc. I ask the school librarians about these things. The empirical data I collect is thus the school librarians' *interpretation* of their practice and the perceptions, attitudes and thinking behind the practice.

The AB axis:

On this axis one finds the librarians' perceptions of, attitudes towards and assessment of materials - various narratives and media from the school library. Some questions to consider on this axis are: Are the criteria for the choice of material explicit or implicit? To what extent does the individual librarian share these criteria? What materials are given priority currently and how? And what input do librarians have in the choice of material?

The AC axis:

This axis includes the school librarians' thinking on and reasoning for the content of the cultural development process, their ideas of how culture can best be acquired and mediated, their ideas of what the tasks for the school and school librarians are.

The BC axis:

This axis reflects the organization of practice: the management of the encounter between schoolchildren and narratives. As I have already said, it is not the empirical practice that is examined, but the librarians' interpretation of their practice. What activities do they say take place and to what extent?

The projection of the axes

Also at this level there will be a projection of axes onto each other. On the AB and AC axes a number of cultural didactics decisions are made and choices are made on the basis of reflections in this area. These decisions and choices are projected onto the BC axis and have implications here for the management of practice. In practical terms it is not possible to separate the AB and AC axes. When the school librarian on the AB axis takes a decision about what new materials have to be bought in it is done with an eye on cultural development aims. These aims, and the thinking behind them, belong to the AC axis. Accordingly it is also true, of course, that when the school librarian on the AC axis reflects and takes decisions it will involve the AB axis. These two axes can therefore only be looked at separately on an abstract level. The reality of the cultural didactics field is that the axes are in permanent interaction.

A Survey Involving 250 Danish School Librarians

In Autumn 2001 I carried out a quantitative survey involving 250 Danish school librarians. As documented, the purpose was to examine the questions asked in the model. In this paper I will present the results of the 'activities for promoting culture':

First of all I asked the school librarians to what extent they regarded the reading of books, journals, newspapers, watching television programmes, e-mailing, telling and writing stories etc. as a necessity for the promotion of culture. Secondly I asked them to what extent they thought these activities were tasks the school library should carry out. And thirdly I asked them to what extent the activities were actually taking place in their school library.

The three most popular activities were the following: reading books, having books read aloud and using computers to search for information. Almost all of those asked in the survey thought that these activities were, to a very great or great extent, necessary for the process of promoting culture. The results were 97.7%, 97.8% and 94.4% respectively. There is not so much unanimity with regards to whether these activities fall within the responsibility of the school library. Almost all of those asked (98.3%) still thought that it was, to a great extent, the library's responsibility to ensure that pupils read, while only 77.3% considered that it was the library's responsibility to read aloud to pupils. Most librarians saw the computer, as a tool for searching for information, as more important than the teacher librarian reading aloud. 91.4% thought that computers were part of the library's responsibility. An almost identical picture emerged when librarians were asked what actually happened in the library. Mostly schoolchildren read books and used the computers to search for information. 90.7% and 88.6% thought that these activities actually took place to a very great or great extent. By contrast, only half said that teachers read to pupils to the same extent, while 30.2% said that teachers read to pupils to some extent.

Table 1
Pupils read books. Percentage of total.

	Generally necessary in order to transmit culture	The school library's responsibility	Actually happens in the school library
To a very great or great extent	97.7%	98.3%	90.7%
To some extent	2.3%	1.7%	9.3%
To a small extent	0.0%	0.0%	0.0%
To a very small extent or not at all	0.0%	0.0%	0.0%

Table 2
School librarians read to pupils. Percentage of total.

	Generally necessary in order to transmit culture	The school library's responsibility	Actually happens in the school library
To a very great or great extent	97.8%	77.3%	50%
To some extent	2.2%	18.6%	30.2%
To a small extent	0.0%	1.7%	8.1%
To a very small extent or not at all	0.0%	2.4%	11.7%

Table 3
Pupils use the computer to search for information (Internet, CD-Rom). Percentage of total.

	Generally necessary in order to transmit culture	The school library's responsibility	Actually happens in the school library
To a very great or great extent	94.4%	91.4%	88.6%
To some extent	4.9%	6.7%	8.9%
To a small extent	0.7%	1.2%	0.6%
To a very small extent or not at all	0.0%	0.7%	1.9%

The picture was rather more varied when the librarians were asked about the pupils' own writing and about drama in the school library. The general opinion was that these activities were important for promoting culture but they were not seen as the responsibility of the school library and nor was it something that happened very often. Accordingly 88.9% of all the librarians considered that pupils needed to write stories themselves as part of the 'culturalisation' process. However, 36.3% of the school librarians also said that pupils never

wrote stories in the school library. Nevertheless the school library could be regarded as a very suitable place. There is room for schoolchildren to discuss, find inspiration through reading books and there are computers to write stories on.

Table 4

Pupils write stories, also together with and in dialogue with other children and adults.

	Generally necessary in order to transmit culture	The school library's responsibility	Actually happens in the school library
To a very great or great extent	88.9%	16.8%	9.0%
To some extent	10.5%	41.6%	27.0%
To a small extent	0.6%	21.1%	27.7%
To a very small extent or not at all	0.0%	20.5%	36.3%

The same is true for drama. The school library could contribute here by arranging theatre visits outside school and by inviting actors to the school library. The library is the place where schoolchildren can work with a play in a variety of ways: readings, analyses, dramatizations, and making a display around it. But these are activities that have not really made an impact yet with Danish school librarians: only 37.2% saw it as the librarian's job to arrange theatre performances for their pupils and 38.3% said that there was never any drama in their library. Even fewer offered pupils the chance to act in a play at their library: 56.4% answered that pupils never acted in the library and only 2.5% took part in drama productions to any great extent.

Table 5

Pupils see drama

	Generally necessary to transmit culture	The school library's responsibility	Actually happens in the school library
To a very great or great extent	84.0%	37.2%	12.9%
To some extent	13.6%	40.1%	29.4%
To a small extent	2.4%	16.3%	19.4%
To a very small extent or not at all	0.0%	6.4%	38.3%

Table 6
Pupils take part in theatre productions

	Generally necessary in order to transmit culture	The school library's responsibility	Actually happens in the school library
To a very great or great extent	80.9%	80.0%	2.5%
To some extent	16.7%	32.9%	17.7%
To a small extent	2.4%	27.3%	23.4%
To a very small extent or not at all	0.0%	31.5%	56.4%

Conclusion

My survey shows that school librarians by and large see most activities as having significance for the promotion of culture. However, not so many see it as the school library's responsibility to organize these activities and there are not so many of these activities actually taking place in the school library. There continues to be a perception that the school library is a passive service facility. Nevertheless there are indications that school librarians will have to be a lot more active in their roles as mediators of culture. At the same time they will have to think in different ways concerning the organization of their practice. Indeed it is imperative if the school library is intended to be an exciting place, a place where pupils learn and where they learn more than they would have done otherwise. Specifically, this means, for example, that the range of activities will have to be made broader. It means, for example, that pupils will have to have story readings, presentations of art, theatrical productions – and themselves become active participants in culture by having the opportunity to tell stories, work with art and act in plays in the school library. In this way the school library will become a place where pupils are at home with our culture's literary canon of narratives and where they have the space to develop their own narratives. And it thereby becomes a place where they learn the distinctive characteristics of our culture in a fruitful interaction with their own ways of construing meaning.

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Sculpting an Information Literate School Community: Looking for Touchstones

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Abstract

The authors review, and provide findings from, a collaborative action research project in a large private school. The purpose of the research was to implement actions to facilitate a holistic approach to information literacy, and to embed information literacy within teaching units in the school. A second aim was to benchmark best practice. The research took the form of a situation analysis and individual case study 'units'. The experience has created awareness, amongst teaching staff, of techniques and resources to improve the information literacy process amongst students, and of the potential role of the library in collaborative practices.

Introduction

The concept of the information literate school community (ILSC) was coined in 1995 (Henri, 1995). In 1999 the first major work on the topic was published (Henri and Bonanno 1999). Since that time a growing literature on the topic has emerged (133,000 hits 30 May 2002: Google), however, little of this literature is research based. There seems to have been few serious attempts to demonstrate that a journey towards an information literate school community makes a difference to learning outcomes and to motivation for learning.

The emerging interest in Knowledge Management (KM) and Knowledge Building (KB) has perhaps overshadowed the importance of information literacy and the building of school communities that focus on the attainment of information literacy. The writers would argue that information literacy (IL) is a fundamental (conceptual and pragmatic) building block of all knowledge. KM is, in practice, about information (explicit knowledge) and ideas (tacit knowledge). Much of the literature is about managing explicit knowledge and finding ways to share and codify tacit knowledge (Hanson, 2001; Eustace & Hay, 2001; Todd, 2001). KB is about the pursuit of information literacy but in practice KB is often classroom based (rather than school based) and dependent upon individual teachers. The ILSC as defined by Henri (2000b)

A school community that places a high priority (policy, benchmarking, funding, and evaluation) on the pursuit of teacher and student mastery of the processes of becoming informed can be regarded as an information literate school community focused attention and responsibility, beyond individual teachers, beyond individual classrooms, beyond information services, to the policy level.

Seen in this way the ILSC concept is a cousin to that of the learning community (Senge, 1990). The learning community idea can be seen in terms of the two components:

Learning: connotes ongoing action and perpetual curiosity, and engagement. The learning paradigm rather than the instruction paradigm gives primacy to the learner and learning outcomes over the teacher and instruction. This paradigm also 'extends learning beyond the classroom and builds on students' interests, critical thinking, and problem solving skills' (Mitstifer & Miller, 1999:16).

Community: implies a group linked by common interests.

The essential distinction between the concepts is the primacy given to informing processes within the ILSC.

This paper outlines the processes involved in an action research project that attempted to achieve a whole school approach to information literacy, and therefore to develop an information literate school community.

Background to Scotch College

Scotch College Melbourne, is a school 'with a long and distinguished history in Australia.' Established in 1851, it is a Presbyterian school for boys from prep- year 12. The Senior School consists of 1400 students and the Junior School of about 400 students. The students come from some of Melbourne's leading and most influential families. The focus of this paper is on the students in the senior school years (7-12).

There are 125 teachers, most of whom are male. Many of the academic staff have taught at Scotch for over 15 years and some of these teachers exhibit many of the characteristics identified by Bruce (1994) as being counter-productive to information literacy development:

- heavy dependence upon "teaching/lecturing" for the transmission of information
- providing all resources required by students rather than encouraging students to explore knowledge bases independently
- heavy reliance upon reading lists / department collections / boxes of books / class sets
- lack of an understanding of the skills of information literacy

- setting “find out about” assignments
- teacher generated questions, rather than student generated enquiry

All staff and students have access to the College intranet, a Citrix Server and the Internet. The students do not yet have school e-mail accounts and only year 11 and 12 students have laptops. All teaching staff are issued with a laptop and extensive use is made of the Intranet Workbench, the library home page and e-mail by staff.

Currently the Library and Information Centre is staffed by: the Head of Library, 2 other teacher-librarians, 1 teacher, 1 acquisitions librarian, 1 reference librarian, 1 webrarian, 1 media and technology technician and 1 library technician.

Part of the library’s mission reads:

The library is central to implementing, enriching and supporting the teaching and learning program of the college. We are proactive in developing information literate students and supporting an information literate community

The challenge

Researchers Henri (Centre for IT in School and Teacher education), University of Hong Kong) and Eyre (Centre for Studies in Teacher Librarianship, Charles Sturt University), joined with Suzette Boyd (Director of Library Services, Scotch College) to develop a collaborative approach, including action research and participatory evaluation, to identify the quality of information literacy at Scotch College. In addition they saw the opportunity to provide touchstones demonstrating that a focus on information as the key ingredient to learning does make a difference to motivation and achievement among students and staff. Essentially the aim of the project was to:

- Facilitate a whole school approach to information literacy.
- Test and develop information literacy standards.
- Assist in the benchmarking of best practice.
- Determine a set of appropriate information literacy scaffolds.
- Facilitate changing practices to underpin autonomous learning.
- Provide information that empowered policy development.

The challenge can be seen from two distinct perspectives.

Outsider perspective: The outsiders saw the project as an exciting opportunity to spend time within a school and to obtain exposure to real-life issues. Such opportunities are rare and often difficult to achieve. The outsiders were given an opportunity to test their ‘ivory tower’ ideas within a practical setting. They also anticipated being able to use the opportunity to refine their conceptual models as the practice, and reflection on that practice, informed the theory. As academics the outsiders were interested in the opportunity to disseminate the outcomes of the project as a way to further building the knowledge base.

The research component of the project provided a strong base for effective practice. A strong research base underpinning practice could substantially enhance the credibility and profile of the school, those involved in the project, and provide role clarification for the information professionals within the school. At the very least the research project would encourage greater reflection about practice.

Insider perspective: In order to completely understand the insider perspective it is necessary to examine some of the stages leading up to the project.

Pre 1996 – information literacy NOT on agenda

- Head of Library as manager, not working as a teacher-librarian.
- No evidence of information literacy teaching

1996 – 2000 – ‘Research skills’ on agenda

- Appointment of teacher-librarian to teach ‘research skills’
- Reality was finding ‘stuff’ for teachers and conducting ‘locating’ classes
- No collaboration with teachers
- Being ‘on demand’ when classes came to library

2000 – ‘Information literate school community’ NOW on the library agenda

- Appointment of new Head of Library with a focus on information literacy
- Report and recommendations to senior executive included the need to work towards an information literate school community.

Mid 2000

- Recognition for the ROLE of teacher librarian by the College
- Appointment of second teacher librarian
- Teacher librarians working with classes – whenever a class coming into the library has already requested a pathfinder, they are encouraged to seek the assistance of a teacher-librarian to explain how the pathfinder works. These offers are rarely refused and from that first lesson on, library staff are usually asked to work with the boys on subsequent visits to the library. This allows the opportunity to work one-on-one with the students, guiding them through the resources on the home page, and also gives the teacher the opportunity to become involved in learning. It is a strategy that seems to be working, and requests from teachers are increasing.

2001 - Making information literacy happen in the school

The need for an information literacy project (ILP)

In order to come somewhere near to meeting the benchmarks identified by Henri (1999) as hallmarks of an ‘information literate school community’ there was a need to change some of the teaching practices that were embedded at Scotch. It was necessary to encourage teachers to:

- Assist students become autonomous learners
- Equip students with lifelong learning skills for information problem-solving
- Embed information literacy in collaborative practical activity in order that students know what they are learning, why they are learning and how they are learning it
- Take students from being information consumers to information producers
- Take students beyond information retrieval towards understanding, wisdom and insight
- Equip students with the skill to critically evaluate information

Information literate students are competent, independent learners. They know their information needs and actively engage in the world of ideas. They display confidence in their ability to solve problems and know what is relevant information. They operate comfortably in situations where there are multiple answers, as well as those with no answers. They hold high standards for their work and create quality products. Information literate students are flexible, can

adapt to change and are able to function independently and in groups (Pennell 1999)

With this in mind, at the beginning of 2001, when the Director of Educational Research and Development invited Heads of Department to apply for research money for their department, the library applied to undertake an Information Literacy Research Project in conjunction with Charles Sturt University. The proposal was successful.

Six classroom teachers, one educational support teacher and three teacher librarians, worked together to embed information literacy skills into units of work. Classes involved were from year 8 to year 11 and subjects included Economics, English and Science.

It was anticipated that this project, while building on existing strong programs, would be effective in demonstrating that teachers and teacher librarians operating as teams in a planned and collaborative way will improve the chances of improved learning outcomes and information literacy skills for students.

What Outcomes were sought?

The staff wanted to:

- analyse the way teachers deliver research assignments to students
- raise questions about the way students research
- develop strategies to improve information literacy skills
- develop and measure interventions
- gather and analyse data
- pose new questions
- empower teachers to be information literacy mentors for their colleagues

Literature Review

Henri (1995, 1999) suggested a series of benchmarks for determining how well the school was progressing towards an ILSC. McKenzie (1998) suggested that an ILSC has a set of traits that can be measured. The traits are: Invention, fluency, support, navigation, searching, selection, questioning, planning, interpretation, deep thinking, and commitment.

Hay, Henri and Oberg (2002) reported on an international research project that attempted to examine the principal-school librarian relationship, and principal influence in forging an ILSC. The participating countries were: Australia, Canada, Finland, France, Japan, Scotland, and South Korea.

Farmer (2001) reported on an action research project at Redwood High School. The study was driven by a number of concerns. These included: problems students experienced in accessing and evaluating information; student research questions were sometimes vague and underdeveloped; group work in the library was sometimes inefficient; teachers noticed a rise in student plagiarism; students voiced their frustration with assignments; and teachers did not own the information skills model adopted by the school.

The aim of the project was to improve student information literacy competence through:

- Developing a repertoire of research strategies

- critically evaluating information
- Synthesizing and sharing information in creative, meaningful ways
- Incorporating technology into the literacy process.

Two major research questions were posed:

- What information skills do students need to demonstrate?
- What interventions will improve student skills?

At the conclusion of the first phase of the project, Farmer reported that:

- Assignments included clearer and more explicit language about information literacy skills.
- Assignments within in the same course were more uniform.
- Students and teachers made great use of the research guides.
- Classes of students asked more high-level questions when doing research.
- Web site evaluation was taught explicitly in the freshman computer course, and practiced in that grade's science and social studies assignments.
- More attention was made to research process along with research product.
- More students completed research assignments, and work was more solid.
- Reading skills improved.
- Resources were cited more often and more accurately.
- Less plagiarism was evident.
- Information professionals were more involved in the research process, including the assessment of research products.

Methodology

The project at Scotch College incorporated a research element and an evaluative element. It involved both qualitative and quantitative elements and was conducted within a collaborative and participatory framework. Since the agenda from the Scotch perspective was to improve practice through reflection, the action research model was an appropriate one.

Farmer (2001) claimed that action research is associated most closely to the Teachers College of Columbia University in the 1940s (although in more recent times it has become a widely used, though still controversial, research tool made popular by Kemmis and McTaggart (1990) of Deakin University). Farmer stated:

The main idea [of action research] was to give teachers an empirical way to improve practice. Action research may also be considered as a cycle of inquiry, whereby: 1) the present situation is analyzed, 2) questions are raised, 3) factors are identified, 4) solutions are proposed, 5) interventions are developed and measured, 6) data are gathered and analyzed, and 7) new questions are posed. Action research provides a reasonable way to improve student achievement as well as educational practice. Particularly when variables are hard to control, action research at least provides a systematic approach and encourages reflective decision-making. (Farmer 2001: 1)

Hopkins (1985) provided a similar view.

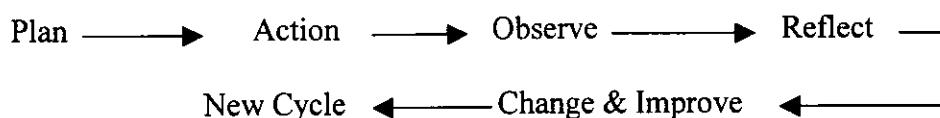
Action Research is a form of self-reflective enquiry undertaken by participants in social (including educational) situations in order to improve the rationality and justice of (a) their own social or educational practices, (b) their understanding of these practices, and (c) the situations in which the practices are carried out. It is

*most rationally empowering when undertaken by participants collaboratively
...sometimes in cooperation with outsiders.*

The action research framework is most appropriate for participants who recognize the existence of shortcomings in their educational activities and who would like to adopt some initial stance in regard to the problem, formulate a plan, carry out an intervention, evaluate the outcomes and develop further strategies in an iterative fashion (Hopkins, 1993).

Action research is cyclical in nature and is intended to foster deeper understanding of a given situation, starting with conceptualising and particularising the problem and moving through several interventions and evaluations.

Fig. 1 The Action Research Spiral



The researchers also employed a form of participatory evaluation (Cousins 2002) to enable benchmarking. This process entailed: semi structured interviews with a sample of teachers, information professionals and students; questionnaires administered to a sample of teachers and students, and document analysis.

Action Research at Scotch College

Action research has two foci: action in practice and knowledge creation through rigorous research (Oosthuizen 2000: 141).

Action research is often intended to bring about a change of practice, while creating knowledge at the same time. These combined characteristics make it useful for exploratory research to bring about improvement in practice, or to propose new solutions to practical problems (Oosthuizen 2000:143).

The Scotch College project conformed to action research in the following ways: critical reflection was part of the methodology and each cycle was followed by evaluation: the researchers participated in the activity. In addition, in action research a change in practice usually occurs, often with (as in this study) an improvement in practice.

Dick (1997) provides a useful framework for rigorous action research, demonstrated by the following model:

Fig. 2 Components of the action research process

Action Strategies (A)	Research Strategies (B)	Data Strategies (C)	Data Models (G)
Action Tactics (D)	Research Tactics (E)	Data Tactics (F)	

As a brief explanation the Action and research *strategies* (A, B, C) involve the planning elements, largely undertaken by the researchers, and the *tactics* comprise the day-to-day processes such as communication and provision of resources, which was largely performed by the library staff. Both the action and research phases generate knowledge and information, which in this model are called *data*.

The Scotch College project comprised 2 major elements of research:

- A Situation Analysis to provide the context for the action research modules.
- Individual Action Research case studies, referred to hereafter as *units* (which also included action)

And, in order to facilitate the process, a number of elements of *Action*, which will be explored at a later stage, were undertaken.

The third dimension was evaluation, or multi-evaluations of the process.

The activities under each of these umbrellas included the phases A-F of Dick's model, with a proposed data model as one of the outcomes of the study. Within both of the *elements of process*, a variety of methods were used, and each element contained a number of *cycles of activity*. Action Research cycle(s) typically contain multiple elements (Oosthuizen 2000: 144), and therefore, as with all research methodologies, contain a package of activities and varying methods of enquiry. Usually action research is applied to single situations but in this particular project, mini satellite action research projects were undertaken within the overall aim of facilitating a whole school approach to information literacy.

One of the features of Action Research, and true in the Scotch College project, is that it can rarely be systematically planned in advance, as it is a process in which data and process are *generated in an explorative manner* (Oosthuizen 2000:147). Through action and reflection, early insights are used to generate further actions. In line with this, it was found that in the Scotch College study the activities overlapped, for example the situation analysis took place simultaneously with the actions required to facilitate the project, though for ease of understanding the various activities are presented here in linear fashion.

The collection of data in every cycle is important in a project of this kind. We attempted to use a variety of methods and a variety of informants in order to include rigour into the process and to verify the data we obtained.

Methods for both phases of the study included, in general terms, multiple case studies within which, focus groups, individual interviews and observation were the main data collection techniques. These were juxtaposed with the actions needed to facilitate the process or change factor.

Having established the broad question, it was necessary for the researchers to explore the *information literacy environment* to provide a context for the project. The process included *inductive reasoning* in that the researchers immersed themselves in the culture of the school in order to collect data, which could then be interpreted to develop concepts and insights from the emerging data patterns. This phase has been called here the *situation analysis*.

The main method used to collect the data in this phase was *convergent interviewing* of selected key senior staff. The chief value of this technique is in establishing important facts when the researchers are not sure of the information to be collected. Usually the process begins with a single, overarching question, from which the interviewee is encouraged to talk for as long as possible. Usually this results in important issues being highlighted. Follow up questions or probes are used to explore areas which are unclear or where further detail is required. Interviews were largely individual, although Focus group interviews with selected students, teachers and Teacher Librarians involved in action research were also carried out. In parallel, key documents in the school were collated and analysed in order to give a broad picture.

In order to gain an holistic view, interviews were held with:

- key support staff in school such as the learning support staff
- members of the school executive, for example two key people in terms of the study, the head of information technology and the head of research
- key teachers, including, but not exclusively, those with whom the case studies were to be undertaken
- teacher librarians and other library staff
- students

Findings of the Situation Analysis Phase

A number of contextual issues, which had the potential to impact on the project, arose. The first category of issues related to the *culture* of the school and how that impacted on innovation and change. This included several major factors:

- communication channels and territorial issues
- the approach to teaching and examinations
- the extent of collaboration and teamwork within the school
- perceptions of the library and its role by teachers, pupils and senior management
- the level of relationships between key people
- the level and quality of IT support
- students' ability and knowledge
- the perceptions of teacher librarians and other staff

The *situation analysis* also provided an audit of the current information literacy environment within the school. The issues here related to:

- the existing framework for information literacy practices:
- the level and consistency of student skills
- the level of information amongst teachers about skills related to Information Literacy
- the processes in place to facilitate systematic skill development
- the existing role and potential of the library
- the expectations and goals of library staff
- ensuring availability of adequate resources

Finally, the situation analysis provide the researchers with information relating to the level of the Information Literacy skills of teachers, pupils and library staff, namely:

- a general understanding of the process and the steps within it
- ability in forming research questions
- skills in defining and refining area of research

- search skills and preferences
- synthesis and analysis skills
- the level of and issues related to plagiarism
- presentation and communication skills

Action Research Units

In the Beginning

Working towards the aims and objectives of the project as specified by the Director of the Library at Scotch College, the researchers initiated a range of actions at the commencement of the project. The main areas to be resolved were:

- selection of participating teachers
- selection of appropriate topics and joint refinement of topics
- establishment of the elements of the research process required within each topic
- professional development activities
- facilitation of communication between teacher librarians and teachers to establish resources

The *actions* to fulfil the above requirements were multi-faceted.

Mentoring of teaching and library staff involved in the units

One of the first priorities was for the researchers and library Director to outline the nature and scope of the project to the teacher librarians and library staff. This took place in initial meetings, but because of the nature of the cyclical, reflective element of action research, liaison was of necessity, ongoing. The teacher librarians and the library Director then had the further task of identifying potential Units and teachers, with whom they would work alongside during the mini projects.

Adoption of a set of rubrics and an information process model

Kuhlthau's Information Process model (1993: 45-51) was used as a basis for the project. This was simplified and adapted locally by the teacher librarians, for inclusion in an information literacy pack.

Development of a pack of background reading and template

An information pack was developed to include, in addition to the process model, indicative readings provided by the researchers, useful school documents, such as essay planning templates devised by the Education Support Teachers, templates for WebQuests and a variety of other similar items. The intention of the pack was, in the first place, to inform and act as a resource for teacher participants and library staff involved in the initial s. It was envisaged, however, that the pack would be a dynamic entity and that as projects evolved, participants would add to the pool of useful documentation and this could then inform future projects. For this reason, the intention was to mount it on the Library Website.

Provision of PD to volunteer teachers

Once some of the initial actions and principles had been established, and volunteer teachers identified, information and training sessions took place, in order to outline some of the detailed concepts. The researchers provided training and development initially, but as confidence grew, these duties were taken over by the teacher librarians. The library also ran training sessions on specific aspects relating to the Information Literacy process, for example, a seminar on *Avoiding Plagiarism*.

Commencement of a series of action research Units aimed to test changing pedagogical practice

After completion of the preparatory work, a stage in the project was reached where the individual projects could be developed and each participating teacher was partnered with a designated teacher-librarian. The planning stage for each project involved a series of meetings, which included the researchers, the teacher and teacher librarian. The purposes of the meetings were to define and refine the topic area, the desired outcomes and those elements of the information literacy process, which were seen to be important.

The individual units

A number of initial projects were devised across subject departments and on diverse topics. Some of these projects were to blossom, whilst others disappeared to be replaced by others. This particular study may differ from other research projects too, in that it was a project, designed not to be self-contained, but to provide a basis for ongoing activity, after the project *per se* had ended. It was envisaged that the initial projects would be built upon, and *cascaded* to other subject areas. The projects outlined below, give some indication of the range and scope of the projects

Topics

The table below (Figure 3) outlines the nature and titles of the projects, and also indicates the information literacy steps, highlighted within each project. The names of personnel involved in the project have been omitted here in the interests of confidentiality.

Although each project was different in nature, there were some common aspects.

- Each of the units involved high level communication and collaboration
- Each of the units was jointly planned by the researchers, teacher librarians and other staff involved
- The execution of each unit included integration of the relevant information literacy issues, and continuous, focused input from the library
- The teacher librarians were involved in classroom activities related to the unit
- Each of the units included a reflective element for both pupils and teachers
- Each of the units was evaluated for effectiveness by the teacher and by the researchers

Evaluation

Evaluation is an important element of any action research project. It is also multi-layered. In the Scotch College project, evaluations were undertaken at the beginning and end of each unit, and at the end of the overall project. The researchers sought to elicit the views of all participants, students, teachers and library staff. In addition, teachers evaluated the learning outcomes prior to and at the end of each unit. Evaluation techniques included the use of focus groups, observation and document analysis.

<p>Economics Economics in transition – China</p> <p>Teacher: Rob Cavalan Teacher Librarians:</p> <p>Year 10 Aims of project:</p> <p>Key IL issues:</p> <ul style="list-style-type: none"> • information evaluation • note-taking • synthesis • presentation • collaboration <p>Methods</p> <ul style="list-style-type: none"> • search electronic and print resources • lessons on synthesizing • concept mapping • use of PowerPoint for presentation diaries by students to reflect process • link with students in Beijing <p>Themes to be explored:</p> <ul style="list-style-type: none"> • transition economy (China) • comparative economies • history • socialism • economic growth/ (un) employment/ inflation • income and wealth distribution • expanding sectors in China's economy • Australia' economic relationship with China • Education system • Rights of worker <p>TL Involvement:</p> <ul style="list-style-type: none"> • Tls to prepare electronic and print resources with a set of bookmarks 	<p>English Favourite authors</p> <p>Teacher: Teacher Librarians:</p> <p>Year 10 Aims of project:</p> <p>Key IL issues:</p> <ul style="list-style-type: none"> • focus formulation • note-taking • analysis • synthesis <p>Methods</p> <ul style="list-style-type: none"> • brainstorming • lessons on synthesizing <p>TL Involvement:</p> <ul style="list-style-type: none"> • lessons on synthesizing 	<p>English MacBeth</p> <p>Teacher: Education Support Teacher: Teacher Librarians:</p> <p>Year 10 Aims of project:</p> <p>Key IL issues:</p> <ul style="list-style-type: none"> • brainstorming • mapping • synthesising • evaluating <p>Methods:</p> <ul style="list-style-type: none"> • Use of <i>Inspiration</i> software • Reflective diaries • Interpretive essay using template by Anne Martin • Oral presentation via groupwork • Mark to analyse paper and critique against his own standards • Lesson on synthesis – Mark • Lessons on cheating – use papers from <i>School Sucks</i> website and ask students to evaluate <p>Themes to be explored:</p> <ul style="list-style-type: none"> • Background on Macbeth • Human issues such as guilt, evil, obsessive love, ambition, relationships etc • Relationship of issues to own life • Relationship of issues to what is happening in the world <p>TL Involvement:</p> <ul style="list-style-type: none"> • Pre unit – Bookmarking of relevant information sources • Lesson on <i>Inspiration</i> software • Help with searches • Post unit – Work from student bibliographies, relevant material to be placed on folders in reserve 	<p>Science Food and digestion</p> <p>Teacher: Teacher Librarians:</p> <p>Year 10 Aims of the project:</p> <p>Key IL issues:</p> <ul style="list-style-type: none"> • Evaluation • note-taking • presentation • communication <p>Methods:</p> <ul style="list-style-type: none"> • Customised webquest • group work • template on web evaluation • Diaries • Pre and post testing <p>TL Involvement:</p> <ul style="list-style-type: none"> • Pre unit – Bookmarking of relevant information sources • Availability of and lesson on <i>Inspiration</i> software • Help with searches 	<p>English Newspaper issues</p> <p>Teacher: Teacher Librarians:</p> <p>Year 10 Aims of project:</p> <p>Key IL issues Analysis Locating articles Defining topic</p> <p>Methods:</p> <ul style="list-style-type: none"> • Groupwork • Use of Scaffold/ matrix to aid in analysis • Oral presentation • Diary on group work • Peer and self assessment <p>Themes to be explored:</p> <p>TL Involvement:</p> <ul style="list-style-type: none"> • Provision of URLs • Help with retrieval of articles
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Fig.3 Table of initial units demonstrating desires outcomes and process

The Outcomes of the Project

Six months later, information literacy is clearly on the agenda at Scotch College. It is being supported through the compilation, distribution and promulgation of an Information Literacy Handbook; through the appointment of an additional teacher to the staff of the library; through teacher librarians working alongside teachers and students in year 7 teams to develop and teach units of work which incorporate information literacy skills; through further development of the library home page as a pivotal element in supporting the curriculum; and through support from the Principal and other decision-makers and acknowledgment that there is work to be done in sculpting the information literate school community and that the library's role is central to that process.

Information Literacy Handbook

An outcome of the ILP was a recommendation that the teacher librarians compile a handbook for use by teachers. This resource was to include:

- the information literacy process
- an information literacy skills continuum, year 7 - 12
- a skills checklist from years 7 – 12
- the role of the teacher librarian
- templates to support the six steps in the information process
- a set of rubrics

This handbook was completed by the end of 2001 and distributed to all year 7 teachers (25 in total) at the beginning of 2002. The teacher librarian and teacher (library) attached to the ten year 7 teams are able to map the skills developments of each year 7 class and suggest skills foci for forthcoming project work. Currently all teaching staff at Scotch has a copy of the handbook. It is also available on the College intranet, so teachers at any year level can download templates for use with their classes.

Staffing

An additional teacher was appointed to the library staff at the start of 2002. This new appointment reflected the commitment the College was making to towards an information literate school community. It was decided that this teacher would be allocated only a minimum of duties in the library to enable her to work directly and 'on demand' with teachers.

Alongside the teacher librarians she:

- works with the teacher to plan, design, deliver and evaluate instruction
- serves as teacher and consultant
- provides leadership, expertise and advocacy in the use of technology and resources
- models the use of the 'information literacy handbook'
- encourages students to accept responsibility for their own learning

Teams

At the commencement of 2002, each teacher in the library was allocated to one of the ten year 7 teams as a partner in learning. These members of the library staff attend all team meetings, support collaborative and cross-curricula projects and team-teach with class teachers. In addition, their role encompasses all of those listed above.

Library Home Page

Scotch College has become an on-line information provider through the library home page. It is a valuable resource and is the place where staff and students are encouraged to begin, when undertaking any form of research. The home page, in conjunction with topic pathfinders will guide all users to the information available from the College library. It is a "one-stop-shop" for information, supporting information literacy development through:

- on-line electronic data bases
- web-based library catalogue
- Internet links for all subjects
- reference centre
- pathfinder to current information
- professional development program for staff

Teachers were primarily concerned about finding appropriate sites for use with their classes. Even though there was a selection of curriculum links for all subjects available on the Scotch home page, members of staff were often unaware of the existence of these links. Not only were they unaware of the curriculum links, but also were often ignorant of the fact that we had a web-based library catalogue, and on-line databases also accessible from the library home page.

Professional development (PD) of teachers

All teachers are involved in a wide range of co-curricular activities, including sport, drama, music, services, debating, cadets and many more. This results in all teachers having at least two nights of after-school commitments, along with lunchtime rehearsals, meetings and practices. This makes it difficult to organise in-house PD opportunities. However, there is a time put aside on Friday afternoons for faculty meetings from 3.00-4.00. This is potentially the only time during the week for any on-going systematic professional development to occur.

Teacher librarians work with teachers to:

- inform them about the content of the library home page as a resource for teaching and learning
- restructure the teaching/learning process for student-centred and independent learning
- explore creative ways to incorporate the teaching of the information skills process into the curriculum
- develop strategies for assessing information literacy skills
- develop a continuum of increasingly complex information literacy skills across years 7 - 12
- encourage teachers to set research tasks that eliminate plagiarism
- inform teachers about evaluating information on the internet
- use information technology in teaching and learning
- When talking to teachers about their classes or running PD sessions, they are asked if they are able to provide any Internet addresses for inclusion under their curriculum area on the library home page. This encourages their involvement in its content. If they have had been involved in selection of sites, they are more likely to refer students to the home page.

Role of the principal and senior management

- Principal provides the vision and the structures and a 'top-down mandate' for the development of an information literate community

- Fosters a culture of collaboration
- Provides the budget and time for professional development, which is essential for teachers to effect a change in their teaching strategies and become information literate themselves. (Pennell 1999)
- Provides a solid technical infrastructure to support learning technologies
- Ensures the library is adequately staffed and funded

What was learned from involvement in the Information Literacy Project?

- Reflective practice is essential
- The profile and credibility of the teacher librarian is enhanced through partnership with teachers

Suggestions for Further Research

A project such as this generates a great deal of information. Incidental observation of the students using electronic facilities has already led to collaborative research with the University of Wales. This research is in the form of a bilateral study, to take place in the UK and Australia, of the use of information databases by high school students linking in with research looking at tertiary students information practice, previously undertaken by the University of Wales.

One of the proposed outcomes of the Scotch College project was the development of a set of information literacy scaffolds. Templates connected with this are still under development, but once completed it is suggested that these be tested in other schools of differing backgrounds.

It would also be interesting to replicate parts of the study, such as the teaching units, in other schools and to measure the outcomes. Issues such as the impact of school infrastructure may then be assessed to determine the influence of the information literacy environment on achieving a whole school literacy approach.

Lastly, information literacy is emerging as an issue in higher education institutions, and also in the workplace. Many of the questions and models resulting from the Scotch College project could be tested in these situations.

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Appendix 1

BENCHMARKS USED IN THE PROJECT

- ✓ The school has an information policy in place.
- ✓ The school has adopted an information technology plan.
- ✓ The school has a Homepage, an Intranet and Extranets. Learning is the dominant consideration in their design and maintenance.
- ✓ The school has benchmarked information competencies that are expected of students at key points in their school career.
- ✓ Students build a portfolio of evidence of their level of information literacy.
- ✓ A significant percentage of school funds are budgeted for the provision of information services.
- ✓ The school understands and defends the role of the teacher librarian, as articulated in policy documents.
- ✓ The school requires that the teacher in charge of information services be a qualified teacher librarian.
- ✓ The school supports the professional development of staff with respect to information literacy.
- ✓ Students are able to recognise that their teachers are learning as well as teaching.
- ✓ Information skills are taught/learned across the curriculum and in context.
- ✓ The process of learning from information and of constructing knowledge is always paramount. Learning contexts are varied and involve students in the meaningful use of a wide range of information resources.
- ✓ Teachers talk, dream, plan and teach as a team rather than as a group of individuals.
- ✓ Reporting on student achievement focuses on how the student is maturing as a learner.
- ✓ When assessing students, teachers are as interested in drafts and other working documents as they are in the final piece of work. (Teachers seek evidence that students are constructing their own meaning).
- ✓ Teachers encourage student collaboration in many aspects of their learning. Information tasks are negotiated with the stakeholders-teacher librarian, class teachers, students, and special teachers.
- ✓ The school monitors the information work demands that are placed on each student.
- ✓ Special attention is given to 'out of school demands'. When students are required to undertake homework that involves a step(s) in the information process, teachers consider issues of social justice, equity, and the domestic demands placed on students.
- ✓ Students are encouraged to provide constructive feedback to teachers with respect to information based learning tasks.
- ✓ Students maintain logs or other records of their learning -the successes and challenges - and are involved in self-assessment.
- ✓ The school fosters knowledge management and expects the teacher librarian to provide timely information for corporate decision making, providing the resources to make this possible. (Henri 1999)

Appendix 2

TEACHER LIBRARIAN/CLASS TEACHER PARTNERSHIP RUBRIC

ACTIVITY	EXEMPLARY	GOOD	FAIR	LIMITED
ASSESSMENT	Partners use various assessment strategies to evaluate students/services. Assessment drives curricular program. Assessment IS used to improve resources/instruction	Partners regularly assess students/services. Assessment informs resources/instruction decisions.	TL or partner sometimes assesses students/services. Assessment sometimes impacts curricular or instructional decisions.	Partners do not share assessments. Assessments seldom impact curriculum decisions.
PLANNING	TL is full curriculum development partner. Full range of info lit skills are integrated in curriculum. All activities involving the library are planned cooperatively. TL is involved throughout planning process.	TL helps develop curriculum. Most info lit skills are integrated into the curriculum. Many activities involving the library are planned cooperatively. TL plays significant role in planning.	TL supports curriculum development. Some info lit skills are integrated into the curriculum. Some activities involving the library are planned cooperatively. TL plays a limited role in planning.	TL follows curriculum development. A few info lit skills are integrated – or are taught in isolation. Few activities involving the library are planned cooperatively. TL isn't part of plan.
IMPLEMENTATION	Partners usually team-teach. Partners use a variety of strategies and resources. Partners assess student achievement regularly. Partners modify plan as needed in collaboration with others.	Partners sometimes team-teach. Partners share several strategies and resources. Partners sometimes assess student achievement. Partners make some plan changes as needed.	Partners decide who teaches. Partners share some resources or strategies. Partners assess student achievement unevenly. Partners occasionally change plans.	TL doesn't teach. Resources and strategies are not shared. TL does not access student work. Partners seldom change plans.
COMMITMENT	Partners communicate regularly with each other and with the school community. Partnership is long term and close. Peer coaching is ubiquitous.	Partners communicate regularly with each other. Partners have worked together and coached each other regularly.	Partners sometimes communicate and work together, usually for short-term activities. Peer coaching is patchy.	Partners seldom communicate, coach or work with each other. Activities are one time only.

Adapted from Farmer, Lesley S. J. (1999) *Partnerships for Lifelong Learning*. Linworth.

Strategic Directions and Newer Dilemmas for Teacher-Librarians and School Library Resource Centres

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Abstract

Once a leader in the provision of effective school library services, the Vancouver (British Columbia, Canada) School Board has seen its intellectual and material assets diminish with growing confusion about the role of the teacher-librarian, particularly with regard to information technologies. The investigator reviewed the current status of school library resource centres, including staffing, resources and use, to identify "revenue-neutral" improvements based on research evidence and best practice. In the course of the review several dilemmas emerged that challenged conventional wisdom regarding the delivery of school library services; these dilemmas are the focus of this paper.

Introduction

The Vancouver (British Columbia, Canada) School Board has been a leader in resource-based learning through teacher-librarians and school library resource centres for almost thirty years. The "service" is based on collaborative program planning and team teaching between teacher and teacher-librarian to integrate "information literacy" with the classroom program, with the support of the principal and district staff. Studies by the Board itself, and by others, indicated that this model enhanced student achievement, curriculum implementation and the development of collaborative work environments in schools.

During the past ten years, however, several changes have resulted in stress on this program and the various partners in its maintenance. Budget reductions by the Province of British Columbia Ministry of Education, the funding agency, have resulted in (a) reduction of the central district staff in teacher-librarianship that provided leadership, staff development and training for district curriculum consultants, school principals, teacher-librarians and teachers, (b) elimination of technical and clerical support staff for teacher-librarians in both elementary and secondary schools; and (c) funds for library/learning resources being dramatically reduced. The advent of information technology has also confused roles and responsibilities in the district and school, and resulted in limited resources being redirected to separate technology equipment and staff.

Further, the provincial government legislated provincial bargaining for teachers, meaning that the teachers' union and the employers bargained directly and uniformly for working and learning conditions across the province, a right formerly held by locally-elected school boards and local unions. After three years the two parties could not reach agreement,

and the provincial government met with the teachers' union and negotiated an "agreement in committee", which resulted in minimum staffing across the province for teacher-librarians of one full-time professional equivalent for every seven hundred students. In the case of Vancouver, this resulted in a reduction or reallocation of some teacher-librarian time for at least part of each day/week to the provision of preparation or relief time for classroom teachers for the first time in thirty years; this was the only way the Board was able to maintain its teacher-librarian staffing in a period of financial cutbacks. Further stress has grown from the move from prescribed provincial curriculum to integrated resource packages placing more responsibility on the school/district for the selection of resources to meet intended learning outcomes. The reduced appeal of the resulting role of the teacher-librarian led to teachers without specialized qualifications being assigned as "teacher-librarian", again for the first time in thirty years.

In order to remain a leader in an program area that promotes student achievement and flexibility in program delivery, the Vancouver School Board identified a need to review the role and responsibilities of teacher-librarians and school library resource centres within the context of existing budget allocations and contractual obligations with teachers and other unions.

Goals and Objectives

Within the context of current expenditures, contractual obligations, funding issues and appropriate rights and responsibilities of stakeholder groups, this project (Haycock, 2001) reviewed the current status of school library resource centres in the Vancouver school system, including staffing, resources and use, to identify potential improvements based on research evidence and best practice.

The specific research objectives were to clarify the role and responsibilities of the teacher-librarian, to review resource selection and management, to specify coordinated approaches to information technology resources and use, to articulate roles and responsibilities in program development and delivery, to identify mutual roles, expectations and responsibilities with other agencies, specifically the Vancouver Public Library and to identify essential elements of an ongoing professional development plan for teacher-librarians.

Documents analyzed included Board policies, accreditation recommendations and annual reports; data was collected from a stratified random sample of 50 of 110 schools. More than 150 individuals participated in review sessions.

Research Review

The research evidence makes it clear that teacher-librarians and school resource centres have a positive impact on student achievement, on motivation and ability to read and on the teaching and learning climate in the school (Haycock, 1996). These effects are achieved with qualified teacher-librarians who collaborate with classroom colleagues to integrate those skills and strategies that enable students to access and use information effectively. The resulting units of study are team taught by the teacher and teacher-librarian in flexibly scheduled resource centres. Support staff frees the teacher-librarian to plan and teach with colleagues.

The mere presence of staff, facility and resources are not sufficient in and of themselves to bring substantial gains, however, although there is evidence for improvement in achievement even at this level of program development.

Quality programs require a stated aim for the library program, a definition of the role of the qualified teacher-librarian as well as the other partners—province, district, administrators, teachers, a priority on collaborative program planning and team teaching between the teacher-librarian and classroom colleagues, a systematic approach to teaching the information process based on a school-based continuum of information skills and strategies, flexible scheduling of classes and groups after planning, and appropriate and effective program and personnel evaluation by administrators. A program such as this requires administrative leadership and support and effective staff development.

Studies indicate that the development of student competence in information skills is most effective when integrated with classroom instruction through collaborative program planning and team teaching by two equal teaching partners—the classroom teacher and teacher-librarian—in a flexibly scheduled resource centre. The teacher-librarian plays important roles as information and resource specialist, teacher and instructional planner.

The most significant change in roles occurs when the school moves to flexible scheduling and curriculum-integrated instruction, and greater curriculum involvement by the teacher-librarian occurs when flexible scheduling is combined with team planning. Increased interest in books and more enjoyment in reading is also more apparent with reading integration throughout the curriculum, and flexible scheduling. Even student attitudes toward the resource centre and reading are more positive in flexibly scheduled programs.

Students taught through collaborative program planning and teaching have a better understanding of effective use of the library resource centre and achieve significantly better academic scores for both content and skills/strategies.

Studies in Colorado (USA) have been replicated in Alaska, Pennsylvania and Texas, with similar results. Teacher-librarians who are most effective, that is have a positive impact on student achievement, collaborate with colleagues in flexibly scheduled programs and provide leadership in the effective use of resources, including information technologies.

Stephen Krashen, in his review of research on reading and schooling, found that more reading is done where there is a school library and a teacher-librarian. Children also read more where they live close to a public library. A print-rich environment, including larger library collections, and a good reading environment, including comfort and quiet, affect reading, literacy and test scores.

Historical Development

A review of the historical development of Vancouver's school library resource centres over eight years revealed several common elements:

- the role of the Ministry of Education in articulating the role of the teacher-librarian and library resource centre and providing resource documents and targeted financial support for school libraries;
- the leadership role of the Vancouver School Board in approving policies on the purpose of the program, the role of the teacher-librarian, the selection of learning

- resources, the inclusion of research and study skills in foundation curricula, and the provision of district support and leadership staff, with a cyclical redevelopment of facilities, equipment and collections;
- the district's central approach to resource management with standardized procedures, access and security, and the development of district collections where of greatest economic benefit;
 - the active engagement and support of school administrators and teachers;
 - the high standards expected of teacher-librarians with minimum professional qualifications and essential in-service education to support expectations;
 - the emphasis on collaboration with classroom teachers in developing and implementing integrated programs of use and selecting resources to support those programs;
 - the identification of flexible schedules as a goal and movement over time to create these at the secondary and then elementary levels, moving teacher-librarians from providing preparation relief for classroom colleagues;
 - the close relationship with the Vancouver Public Library in developing reading and literacy among young people.

In the past fifteen years the Board has faced increased stresses on its financial resources and flexibility to meet local needs and priorities through loss of its right to raise school funds through taxation, reduced funding allocations and provincial bargaining with employee groups. The result for school resource centres has been reductions in professional time at the elementary school level, together with the use of the teacher-librarian to provide preparation time for teachers (a practice eliminated by administrative direction in 1978), elimination of all clerical assistance, and budget reductions for library resources of more than 80%. Private school funding for library resources in greater Vancouver is now typically five times greater than the Vancouver School Board. School raised funds, for example through parent fundraising, now equals the Board allocation at the elementary level and is approximately half at the secondary level. Schools in each area of the city raise funds and make use of adult and student volunteers.

In spite of these reductions and constraints, teachers, administrators, teacher-librarians and parents point to common strengths across the system: committed and qualified staff; supportive administrators and teachers; a focus on collaboration and literacy; linkages between all types of print, video and electronic resources for research and reading for pleasure. Parents note that this is one area of the school for which there is unanimous support for community fundraising.

Strategic Directions

Six strategic directions with recommendations were proposed based on the study; in summary, the school district should:

(1) approve a role statement for the teacher-librarian outlining both professional and personal competencies; require minimum qualifications for the position; implement written evaluation measures and processes based on the role description and school priorities and initiate a recruitment plan;

(2) identify essential elements of an ongoing professional development plan for teacher-librarians; enable principals and teacher-librarians to develop professional growth

plans to ensure that the teacher-librarian can meet the stated expectations or move to a classroom position in the system; establish priorities for professional development, including a trainer of trainer model to provide leadership in the selection and use of learning and information technologies in all forms and formats;

(3) review resource selection and management; improve print and audio-visual resources through targeted funding when possible; improve electronic resources through a district approach to identifying appropriate Internet sites; review equipment and facilities; increase clerical and technical support through clarification of roles and responsibilities for technology; encourage the use of adult and student volunteers; improve access to facilities and resources through distinction between using the resource centre and the teacher-librarian, with the school assuming shared responsibility for the facility and access to resources;

(4) specify coordinated approaches to information technology resources and use; make the district's Learning and Information Technologies division—encompassing books, textbooks, videos, electronic resources; equipment and infrastructure—a model for the resource centre, a hybrid approach to the selection, management and use of learning resources to enable greater efficiencies and effectiveness; ensure that teacher leaders for resource services in secondary schools similarly encompass all learning resources at the school level; provide a common graphic user interface for all elementary school students with gateways to appropriate search engines and full-text databases;

(5) articulate roles and responsibilities—the province provides overall direction and funding; the school district provides vision, leadership and training in collaborative planning and teaching, developing an information continuum/process, support for the integration of skills and strategies and flexible scheduling, and ongoing assessment and evaluation; provides consultative and technical services and support for resource management; the principal fosters a climate for collaboration, ensures competent personnel and access to the facility and resources in conjunction with all staff; the teacher needs to collaborate with the teacher-librarian for the best use of preparation periods as well as integrated programs; parents and students are also partners as major funders, supporters and users of the service;

(6) identify mutual roles, expectations and responsibilities with the Vancouver Public Library; each agency selects and manages resources for a common client group and develops literacy programs to encourage best use of those resources; pursue collaborative projects, from homework centres to family literacy programs to a centre for research and professional resources; each student should have a library card and a visit to the public library by the end of the fourth grade.

Professional Dilemmas

Role of the Teacher-librarian

The Vancouver School Board had a long history of full-time qualified teacher-librarians in elementary schools with more than 300 students; over time this had been increased to 350 students. With provincial bargaining and funding based on one teacher-librarian for 700 students it was likely that staffing would be reduced by half. In a move to “protect” teacher-librarians, the Board's senior management team decreed that school principals must use teacher-librarians to provide coverage for classroom teachers for at least part of each week to maintain them in full-time positions. This was an unpopular decision. Some principals preferred to use the coverage to enable them to continue art, music and/or

physical education programs which were eliminated in budget reductions. Teacher-librarians were angry that their time was being "misused" to provide relief or preparation periods for their colleagues. In interviews, the one issue continually identified by teacher-librarians as the impediment to the development of an exemplary program was that up to half of their time was being used for these scheduled classes.

The dilemma here, in a fixed funding situation, is whether to recommend that (a) teacher-librarians have a flexible schedule only, with reduced time, ensuring that the time allocated is used effectively and there is no confusion about the time available for collaboration and team teaching or (b) teacher-librarians be full-time, even if that meant that some of their time needed to be spent teaching scheduled classes, in order to ensure maximum time in the library resource centre and maximum attention to the Board's investment in facilities and resources.

The recommendation eventually made suggested that no more than one-third of a teacher-librarian's time should be allocated to scheduled classes and that this should be at a time when limited school support staff might supervise to enable multiple activities to be undertaken at the same time. Further, the time spent teaching scheduled classes was not to be recorded as teacher-librarian time but as preparation coverage time so as not to confuse the time allocated as teacher-librarian and not to confuse the role expectations for the teacher-librarian.

The Role of the Teacher-librarian and Information Technology

Like school system around the world, the Vancouver School Board recognized a need to provide appropriate computer hardware and software in a time of financial restraint. Similarly, the linkage between library resource centres and information technology was not made and was not promoted actively and uniformly by teacher-librarians. Some teacher-librarians were leaders in this integration and some had no interest in assuming additional responsibility in a new area for them. Decisions were made on individual interest rather than role clarification. Indeed, at the secondary school level entire departments were developed around technology while the teacher-librarian in charge of the secondary school library resource centre had the title "Head of Resource Services".

The dilemma for the investigator was to recommend changes to clarify roles and responsibilities that recognized ability to deliver quality programs and services. Many recommendations were made for improvements in the central office and at the school level, including training teacher-librarians for positions of leadership in learning and information technologies. However, should teacher-librarians assume more and more responsibilities while their support staff and time is being eroded? Conversely, will they ever get more time and attention if they avoid areas of high priority in the system, such as information technology? It was recommended that teacher-librarians, technology staff and all resources be integrated in secondary schools under the Head of Resource Services; this was acceptable to neither the teacher-librarians nor the Board management.

School Priorities and Support

Each school in Vancouver has some flexibility in its staffing and operations beyond the labour contracts and allocated resources. Each school receives an allocation of teacher-

librarian time and a budget for library resources; beyond that, they are free to allocate resources themselves, limited as those resources may be. Some examples follow.

In a study subset of 39 (of more than 90) elementary schools, allocation of paid clerical assistance ranged from no assistance at all (28 schools) to 12 hours per week (one school). Adult volunteer time ranged from 45 hours per week (one school) to no adult volunteers (seven schools). Student volunteer time ranged from 35 hours per week (one school) to no student volunteers (nine schools).

Of the sample, the average enrolment was 372 students with 1.6 hours of paid clerical assistance, 6.9 hours of adult volunteer help per week, and 6.7 hours of student assistance. The school raised an additional \$3,095.54 for the resource centre, or \$8.94 per student. Of the sample, the median enrolment was 375 students with no paid clerical assistance, 4.0 hours of adult volunteer help per week, and 5.0 hours of student assistance; the school raised an additional \$2,300.00 or \$6.47 per student.

Note that most schools raise as much money for library resources as what the school district allocates.

Determining the best situation depends on relative value of paid assistance, adult and student volunteer assistance and school allocated funds for resources. One best "resourced" school, from school-set priorities, enjoyed 75 hours of volunteer assistance and an *additional* \$12 per student for library resources. Another best "resourced" school, from school-set priorities, enjoyed 10 hours of paid clerical assistance, 11 hours of adult volunteer time and an *additional* \$39 per student for library resources.

The worst "resourced" school from school-set priorities, "enjoyed" two hours of student assistance and \$1.50 per student for library resources.

There were no differences across the city in the allocation of paid clerical assistance by school administrators; in other words, socio-economic area had no bearing on this decision. Similarly, and somewhat surprisingly, schools in each area seem capable of recruiting and making effective use of adult and student volunteers. Each school has equal access to student volunteers but greater use is made in one area of the city, suggesting that use is dependent on an attitude toward volunteers generally or a school culture more welcoming of volunteers. Schools in each area of the city also demonstrated the ability to raise funds for library resources.

The situation in secondary schools is similar, examining in greater detail a sample of 11 (of 18) secondary schools for school-based allocations of staffing and funding. Unlike elementary schools, no school provided any paid clerical assistance after all library clerical help was eliminated. (There were union jurisdictional issues here.) Adult volunteer time ranged from 5 hours per week (one school) to no adult volunteers (six schools). Student volunteer time ranged from 80 hours per week (one school) to three hours per week of volunteers (one school).

Of the sample, the average enrolment was 1391 students with no paid clerical assistance, 1.5 hours of adult volunteer help, and 41.4 hours of student assistance; the school raised an *additional* \$ 8,513.64 for the resource centre, or \$5.30 per student. Of the sample, the median enrolment was 1364 with no paid clerical assistance, no adult volunteer help, and

40.0 hours of student assistance; the school raised an *additional* \$3,000.00 or \$.95 per student.

Determining the best situation depends on relative value of paid assistance, adult and student volunteer assistance and school allocated funds for resources. One best "resourced" school, from school-set priorities, enjoyed 4 hours of adult volunteer assistance, 30 hours of student assistance and an *additional* \$20.30 per student for library resources. Another best "resourced" school, from school-set priorities, enjoyed no adult volunteer assistance but 60 hours of student assistance and an additional \$10.96 per student for library resources.

The worst "resourced" school from school-set priorities, "enjoyed" four hours of adult volunteer assistance, no student assistance and no additional funds for library resources. This is a school in the highest socio-economic area of the city.

In essence, then, regardless of socio-economic area, there are no differences in the allocation of paid clerical assistance by school administrators. Schools in each area seem capable of recruiting and making effective use of adult volunteers. Schools in each area seem capable of recruiting and making effective use of student volunteers. Likewise, ability to raise and allocate funds to library resources appears to be more dependent on school priorities and initiatives than geographic area.

The dilemma here centres on the attitude of the school toward allocation of clerical staff and additional resources to the library resource centre; some teacher-librarians refused to accept additional funds on principle, stating that they should not have to raise additional monies from parents. Similarly, it appears that the teacher-librarian's attitude toward volunteers, whether adults or students, is important in determining whether they will be used and to what extent. Should one's ability to raise funds or work with parents to raise funds, and to engage adult and student volunteers in the library enterprise, be a component of the teacher-librarian's role and a criterion for assessing a teacher-librarian's performance? Certainly every referral to an exemplary library resource centre included extensive use of volunteers and funds seemed to follow.

The District's Role

The role of the district in developing library resource centres is clear and the Vancouver School Board has played a leadership role in articulating roles and responsibilities, approving policies on qualifications, the selection of materials and standards, and providing district leadership and support services. However, the district has moved from a district-led program with school supervision to a school-based program with limited district support.

The budget for library resources allocated by the district has deteriorated by more than 80% in twenty years, to CDN \$7 at the elementary school level per student and CDN \$12 per student at the secondary school level per student. At the same time, parent and school-raised funds allocated almost CDN \$9 at the elementary school level per student (*more* than the district) and more than CDN \$6 per student at the secondary school level per student.

The district allocation of funds is the "official" allocation yet it represents approximately half of the total budget. The dilemma here is that the district bears

responsibility, together with its funder, to provide adequate support for library resources. The district has never acknowledged the role of parents and schools in supporting library resource centres to the extent that they do. On the one hand, the existing model of schools supplementing district allocations of funds acknowledges both this policy and the economic and political reality. On the other hand, funds would be expended much more judiciously and usefully if the district and schools acknowledged the current reality and the district centralized its allocation and targeted it to specific district-wide initiatives such as database site licences and support for new curricular initiatives. The schools could then allocate their resources to more local needs. Although a better use of funds, this simple change “institutionalizes” school-raised funds in a way that no one appears to want, even though it has been common practice in the district since its inception almost one hundred years ago. Schools are spending inordinate funds on site licences due to this lack of coordination and decentralization of funds.

The Parents' Attitude

Throughout the interviews with individual parents and representatives of parent advisory councils for schools and with the executive committee of the district parents' advisory council, the support of parents was “absolutely unbelievable”. Parents consistently named school libraries, including teacher-librarians and resources, as among their highest priorities for increased funding. One could not ask for a more supportive, active, vocal or effective group to advocate for these programs.

The dilemma rests with the attitude of parents. The parents are enormously supportive of school library resource centres; indeed, in the words of one parent leader: “The school library is the only area of the school where there is never any argument or debate about raising funds. For every other area there is always a difference of opinion about whether it should be a high priority. This is never the case with school libraries. The teacher-librarians enjoy widespread parent support.” However, parents raise funds only for areas that they believe are not essential; for example, parents will not raise funds for textbooks or for paid staffing as they believe that these should be provided by government.

Herein lies the dilemma. Teacher-librarians have garnered support from parents to the extent that they are the highest priority of the “non-essential” areas. Of course, this is not the way it was expressed to the researcher and some would dispute the conclusion. Nevertheless, is it better to increase one's priority to become “essential” and thus not able to access funds, or to be the highest of the non-essential areas and enjoy CDN \$375,000 a year in school-raised funds?

Policy and Practice

On the face of it, the provincial government's Ministry of Education acknowledges the research base and “best practice” in teacher-librarianship through references in its curriculum documents such as:

Developing independent learners:

“...students are scheduled...according to program needs...”—page 28

“...students participate...through cooperatively planned and taught units... This cannot occur if the timetable...provide(s)...a “library period” designed to give the classroom teacher a “spare” or preparation period.” —page 28

"The school district...develops policies on resource-based learning, including a flexible scheduling statement."—page 20

Literature connections:

"Rather than scheduling classes into the library for the same period every week, the teacher-librarian and classroom teachers should plan together to serve the instructional needs of students. Flexible scheduling...—page 26

Language Arts/English Primary-Graduation Position Statements:

"Inherent...is the understanding that the library resource centre will be scheduled flexibly..."—page 24

On the other hand, new funding formulas and agreements with teacher unions anticipate that teacher-librarians will cover preparation periods for classroom teachers and teach scheduled classes at least some of the time.

It is a dilemma for teacher-librarians to confront the gap between policy and practice. Although this is experienced every day as the curriculum written is not the curriculum delivered, it is nevertheless disconcerting to realize that what government says is not necessarily what government does. Advocacy efforts by teacher-librarians will need to acknowledge that government documents often reflect best practice but that government funding often reflects political realities or just plain ignorance. This needs to be understood when seeking support for the implementation of best practice in schools. The dilemma is to find means to work with government and school district agencies in constructive, collaborative ways to integrate "best practice" with actual practice. Of course, this gap is not unique to government; it is also common among school boards and schools. This need for advocacy, that is, developing support and understanding incrementally over time, will require a planned, deliberate and sustained approach, over time, and will be a long and arduous process but must be seen as an integral part of education for teacher-librarians and of the teacher-librarian's work day.

Conclusion

The purpose of this study was to examine the current status of school library resource centres in the Vancouver (British Columbia, Canada) school system, including staffing, resources and use, and to identify "revenue-neutral" improvements based on research evidence and best practice within the context of current expenditures, contractual obligations, funding issues and appropriate rights and responsibilities of stakeholder groups.

As a result of the study, several dilemmas were identified in which "best practice" was challenged by political realities, that is to say, best practice was possible but perhaps not best in the given situation. These dilemmas centred around the role of the teacher-librarian and its relationship to information technologies, around scheduling and whether more time or greater freedom with more limited time was preferable, around the relationship between attitude and support from volunteers, around the role of the district and school in funding, around parent's perceptions of the library as the "best" after the basics and of the lack of congruence between government pronouncements and government funding.

There is no one right answer to these dilemmas but they warrant consideration and debate as the reality is that best may not always be best, depending on personal preferences, organizational priorities and community perceptions.

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Teaching for Information Literacy: Online Professional Development Challenges

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Abstract

Awareness of the need for *all* teachers to be information literate has prompted a proof-of-concept project to create an online resource for use in self-directed study by teacher-librarians and teachers. The resource includes information literacy theories and teaching strategies that are modelled in supporting adult educators and students as learners. The professional development gains for participants, evidence of student learning resulting from teaching for information literacy and factors to be considered in moving from live workshops to online environments for self-directed study are examined. Questions are raised concerning the nature of online in-service education to promote information literacy. Implications for teacher-librarians as collaborators and information leaders are discussed.

Background

In many schools in New Zealand, the concept of information literacy is now attracting greater attention. There is a growing awareness that to promote information literacy, *all* teachers, not just teacher-librarians, will need to be confident in the retrieval, management and manipulation of information in all modes of delivery and presentation. Previous research (e.g. Slyfield, 1997, Moore, 1998) confirms a need for professional development in this field at both primary (elementary) and secondary (high school) levels. Thus, online access to a professional development resource appears attractive.

The Ministry of Education has prompted and funded initiatives to provide information literacy resources for self-directed study. Online delivery does ensure nation-wide access to appropriate information literacy resources free of charge to users, but it also highlights several issues. For example, information literacy awareness and practice is usually developed through continuing education programmes that attract academic and professional credit. An online resource for self-directed study provides no such extrinsic reward, has no specific time allocation and competes for attention with a variety of curriculum and other initiatives in schools. Thus, efficacy of the approach is likely to be a function of the way the resource is used as a professional development tool by teacher-librarians and teaching staff. This and

other issues have required the project to be conceived as a proof-of-concept activity, to be evaluated from a variety of vantage-points.

The completed evaluation will examine evidence of the impact of the resulting *Teaching for Information Literacy* resource, as a function of participation in the resource development process and compare professional development benefits for teachers both developing and evaluating the resource. In addition, the ways in which the resource is used by evaluators will be explored in relation to professional development gains and student learning outcomes. At the time of writing, the evaluation phase of the project was in progress, having been delayed by events beyond the researchers' control. The current discussion therefore centres on:

- evidence of student learning attributable to teachers' participation in developing the resource
- essential factors to be considered in the metamorphosis of information literacy professional development from workshop to online environments for self-directed study,
- reported professional development gains for participants, and
- indications of ways in which evaluators use the resource as a professional development tool.

The project is due for completion in June 2002 and a full report will be available from the Ministry thereafter.

Resource Scope

The requirement was to provide a website that gives access to user-friendly models of, or approaches to, information literacy through:

- self-directed professional development support materials for primary and secondary teachers
- curriculum materials and guidelines for the evaluation of learning activities and the information literacy learning they facilitate for students, and
- materials to aid senior management in developing strategies to ensure continuing attention to information literacy among staff and students.

The benefits of introducing concerns and practices of librarianship in an educational setting shared by teachers and teacher-librarians have been shown to significantly increase understanding of collaboration, resource-based learning and information literacy among pre-service teachers (Asselin and Naslund, 2000). Inclusion of similar material in this resource provides professional development opportunities for teacher-librarians as well as for teachers. The intention was to illustrate the synergy that should exist between the library and learning and to raise awareness of the ways in which teaching for information literacy needs to be supported at an organisational level.

Theoretical Framework

In all, four concepts provide the theoretical framework for this professional development resource. Examination of information literacy itself is achieved through modelling resource-based learning, constructivism, cognitive apprenticeship and a related emphasis on metacognitive development, all of which are familiar in many classrooms. These supporting concepts have in common a central concern with the learner. For example, constructivist theory assumes that literate people deliberately and inventively make meaning

and crystallise relationships between events and ideas (Greene and Ackerman 1995). In this case, the key task was to enable teachers, with and without library responsibilities, to make sense of a wealth of information literacy models and literature in a manner best suited to their needs and those of their students.

The cognitive apprenticeship approach (Colins, Brown, and Hollum, 1991) was applied because of the cognitive, and often covert, nature of information literacy and the suitability of this approach to web-based learning environments (see for example Oliver and Herrington, 2000). In cognitive apprenticeship, 'experts' make their thinking public, so that learners can begin to build the conditional knowledge essential to strategic application of learning and prediction of outcomes in other settings. The authors were concerned to provide guidance for teachers that enabled them to go beyond dependence on any model lesson to independent creation of flexible, responsive strategies that utilised available resources to the full. Development team teachers were encouraged to reveal their decision-making and critical reflections in instructional design as insights for resource users. They discussed classroom management, pedagogical issues and the observed learning outcomes of students. Thus users of the resource are assisted in the identification of points at which learning activities would need to be adapted to suit their own students and teaching and learning environments.

One conundrum to be addressed was that continuing education usually attracts either academic or professional credit, yet this professional development resource would do neither. Such rewards are not always the reason for studying, but in face of competing activities, they contribute to maintenance of focused and sustained learning. Provision of evidence of learning outcomes attributable to teaching for information literacy was expected to provide intrinsic rewards in that it relates specifically to goals users share with developers.

A second conundrum was that the intended users of the resource were known to range from absolute novices to relative experts in either information literacy or use of information and communication technologies (ICT) personally and in the classroom. Therefore, the resource needed a variety of entry points to match the purposes and information needs of users. To address this, rubrics, as often applied in assessment of information literacy, were developed specifically to aid teachers in identifying those sections of the website most relevant to current information and learning needs.

Within this theoretical and practical framework, the development team brought together existing online information literacy resources and created others specifically to illustrate teaching for information literacy within the National Curriculum for English and Science.

Participants

The development team consisted of the authors with 16 teachers from the Wellington area. (Two withdrew due to pressures of other school activities.) The teachers were known to have participated in some form of information literacy training (e.g. all or part of a teacher-librarianship diploma or completion of masters level information literacy courses). The group was evenly divided between primary and secondary schools and while most teachers elected to work individually, two primary principals and their lead teachers chose to work in pairs.

The proof-of-concept status of this project dictated that evaluation methods were embedded in all phases. An initial survey assessed development and evaluation participants' formal experience of information literacy, use of ICT and the extent of school library and ICT resources. The development team had considerably more information literacy understanding than the evaluation team, but the evaluation team had undertaken more short courses in ICT. (There are 14 self-selected participants in the evaluation, evenly representing primary and secondary schools.)

Only one library supporting a member of the development team was described as poorly resourced and lacking in reliable computer facilities. However, comments on the staffing of all libraries reflected a highly variable situation. Staff included teachers with library responsibility (TLRs), full time teacher-librarians, librarians and part-time teacher-aides. Primary school responses indicated the lack of library qualifications held by teacher-aides and 'librarians'. In contrast, the secondary schools each had at least one full time qualified librarian. Three school libraries were in the process of being redeveloped or relocated.

The small number of participants and the variability in the contexts in which they work has resulted in a number of parallel case studies rather than a study from which findings can be generalised.

Website Resource Development Process

Content selection and organisation

The overall content of the resource *Teaching for information literacy* was selected to enable users to interact critically with relevant literature in making educational decisions. Users' likely professional development needs were defined in consultation with teachers in the development team.

The resource website makes extensive use of existing information literacy-related materials reflecting the international range of approaches. Some guiding commentary and descriptions of learning activities specifically created to meet the demands of the New Zealand curriculum have been added. Where possible, sites by New Zealand authors were selected as starting points for exploring information literacy, however, the number of relevant sites by peers of the target audience for the resource was small. Although many New Zealand teacher-librarians are known to be modelling excellent practice in their own schools, few are maintaining or contributing to information literacy specific websites.

Where appropriate, an authoring tool suited to classroom teaching (Berger, 1998) was used in constructing a path through websites, drawing attention to information literacy issues and inviting critical examination of underlying assumptions. For example, a learning activity on persuasive language and debating for Year 7 students has an associated web tour on genetic engineering. Commentary focuses on the nature of the information available at each site and issues to raise with students. The same tool has been used to introduce teachers and teacher-librarians to a variety of information literacy models appropriate to students of different ages. This approach has the added advantage of supporting those teachers lacking confidence in use of the World Wide Web, while it introduces an easily applied technological tool.

To provide a 'friendly' framework for organising the material, underlying theoretical examples have been categorised loosely as relating to three overlapping factors: Acting on information, Thinking with information and Feelings centred on the information process.

In accord with the cognitive apprenticeship approach, users of the resource have access to 'expert' thinking. Models and scaffolding are provided for establishing their own evidence-based teaching with regard to teaching for information literacy. Non-hierarchical graphic displays are used throughout the website to illustrate organisation.

Collaboration process

The development team participated in one half-day and two one-day workshops, one of which introduced the project and centred on achieving a common understanding of information literacy concepts in terms of acting, thinking and feeling. A variety of information literacy models and approaches were discussed (e.g. Eisenberg and Berkowitz, 1990; New South Wales, 1993; Kuhlthau, 1993; Stripling and Pitts, 1988; Bruce, 1997; Moore, 2001) and participants were encouraged to introduce and apply other relevant models.

The structure of the workshop reflected the fact that the website development process was defined as an information problem, one that would encompass each of the stages commonly identifiable within models of the information process.

The development team defined the expected information needs of new-comers to the teaching practices that lead to information literacy. From discussion of their own needs in relation to new teaching techniques, it emerged that while websites that provide lesson plans are useful, they leave many contextual and outcome questions unanswered. Topics considered important in developing a practical understanding of information literacy were identified and the potential of applying cognitive apprenticeship to professional development was affirmed by teachers themselves. A writing framework (Wray and Lewis, 1995), consisting of questions based on the identified information needs, was developed to provide a scaffold for the development team in capturing and recording their thinking during planning, teaching and evaluating learning activities.

The second workshop focused on using ICT in teaching for information literacy. The authors were concerned that delivering professional development online would confirm the erroneous message that information literacy is concerned with ICT alone. The second workshop therefore explored the relationship between ICT and information literacy in teaching and learning and the need to refer users of *Teaching for Information Literacy* to print and other resources was emphasised. To take advantage of online resources, developers learned how to use the authoring software, Tramlane. Tours created for students were used to model ICT use in teaching.

The final day-long workshop provided explicit support in curriculum design and systematic data collection concerning evidence of student learning outcomes attributable to teaching for information literacy. Participants' curriculum objectives and information literacy objectives for learning activities were discussed and shared, as were approaches to teaching. Templates used in lesson planning included an explicit focus on information literacy. In other words, workshop activities reflected the collaborative planning and evaluation elements of the teacher-librarian's usual role. The difference was that team members (apart from those working in pairs) would not have support in actual teaching, although they could call on colleagues or the authors for observing students' learning. Few

of the development team teachers requested assistance in the classroom and/or library during the weeks that followed, most were confident to proceed independently.

In addition to completion of writing frameworks mentioned above, each participant was interviewed about their expectations for students, the challenges of the project and their information literacy goals for the future. Development team participants had limited, funded release time throughout the project.

The professional development outcomes for participants were evident from workshop feedback sheets, written materials for the website, follow-up interview data and the authors' field notes. In some cases, students' completed work was submitted as evidence of learning outcomes. Analysis of these sources and consideration of evaluation findings to date has provided insights that have implications for teacher-librarians and professional development leaders.

Before discussing the findings, a brief outline of the evaluation phase is provided to complete the context of the proof-of-concept project.

Web Resource Evaluation Process

The evaluation of the project is being conducted over a period of 13 weeks, spanning two school terms. This allows the 14 participants time to study using *Teaching for Information Literacy* in the first term and to plan to apply learning in the second term. An initial two-hour meeting introduced participants to the project and website access. Participants were offered assistance in classroom observations of students' learning if required, but were otherwise to use the resource in a self-directed manner.

The evaluation process has three levels. Each participant has completed a survey concerning the teacher-friendliness of the website. (The website itself was not intended to be highly sophisticated and this information is to be used in improving the navigation and presentation aspects of the site, as well as intellectual access to content.)

Reflection on personal learning and its application to teaching practice is scaffolded by provision of a writing frame similar to that described above. The intention is to encourage evaluation team members to add to the initial database of tested learning activities. However, this group has only the time available to them that would be available to those engaged in self-directed study and such detailed output is unlikely to be produced.

A second writing frame will scaffold reflection on students' learning outcomes.

Written reflections are being supplemented by follow-up interviews using a schedule similar to that used with the development team, but including specific attention to the ways in which evaluators have engaged with the resource personally and used it in professional development with colleagues.

Findings and Discussion

"Teaching for information literacy" and learning outcomes

The international literature provides evidence of benefits related to teaching for information literacy, but the intended audience for the resource is unlikely to use it if it relates only indirectly to local learning communities and conditions. There is some evidence of information skills gains for New Zealand students (e.g. Moore 1998, 2001), but not in settings where a range of self-selected approaches to information literacy were applied in a self directed manner. Development team members had experience of information literacy concepts and indeed, some had been teaching within a resource-based learning and information skills framework for many years. That experience centred largely on single models of "acting on information", thus the task of critically applying one or more models relating to acting, thinking and feelings, as well as revealing personal decision-making, presented a sharp learning curve.

At the end of the first workshop, most participants reported feeling rather overwhelmed by the task of designing, trialing and providing written reflection on teaching for information literacy. However, eleven of the fifteen mentioned excitement, extension of their previous thinking and, true to Kuhlthau's (1991) affective description of the information process, decreasing confusion and greater clarity of purpose emerging alongside increasing confidence. The language used in written feedback reflected adoption of Kuhlthau's approach and the concept of cognitive apprenticeship. One participant, who had been highly vocal and was reported to be inspirational by others, sounded a note of caution however, "Of course, my enthusiasm will be overwhelmed once I'm back at work and busy..."

The obvious implication is that engaging teachers in reflection and creation of materials for others demands both intellectual support and time to think. A clear overview of the purpose, process and product in terms of an information literacy provides a 'cognitive map' and a model for teaching.

Effects on students' learning

In general, developers did not collect learning outcome data as systematically as planned. They did however refer to indicators of student learning that could be monitored by teacher-librarians and colleagues beginning to focus on evidence-based practice.

For example, for children just learning to read, one participant noted that changing the use of non-fiction text from shared narrative to shared, purposeful information seeking, prompted greater engagement with the topic and intensified interest in reading. Evidence emerged spontaneously in parental comments in "home" notebooks and in an increase in requests for teachers to read text around those words children could read. Sentences from year 0 to year 2 children became more complex and communicated a higher level of relevant information. This effect was maintained during two later learning activities and teachers felt challenged to modify the curriculum because of the students' unexpectedly rapid advances.

Other teachers reported that students had learned to:

- "recognise steps in an information literacy model"
- "be selective when searching for information"
- "recognise which questions could be answered using computer resources"
- "distinguish between fact and opinion"
- "make notes from video, computer text and print"
- "rework their own notes/brainstorms into more comprehensive sentences and paragraphs"

- “organise information visually and in text”, and
- “think about how they feel about tasks and to recognise that their feeling may well change as they become familiar with the work.”

In each case, teachers could substantiate their claims if asked, “How do you know students have learned this?” For example, thinking about feelings was made concrete in a primary school by creation of a chart that drew attention to uncertainty as well as satisfaction with process and product. Each child placed a self-portrait on the continuum, engaging in discussion of feelings and moving it during the course of the learning activity. The teacher reported that a new, trusting relationship had emerged between the children and herself as a result of this focus.

Changes in attitude towards learning and self-esteem were evident in several classes, but the evidence was more anecdotal. For example, five other teachers commented on students’ articulation of aspects of the research process and changes in behaviour:

“you just hear them talking and they say ‘oh that was really easy’ ... so at least they’re verbalising some of what’s going on ... certainly it makes them aware of things that they are trying to learn that they don’t know” (Intermediate school teacher)

“I even had one kid try to get in touch with me over the holidays ‘cos he was so enthusiastic about it, which is scary from a third former.” (Secondary school teacher).

“It was the fact that more of them got finished, some of the ones that have never handed in anything, never even attempted anything, set tasks, made an effort and even the boy that has ... big issues with his reading and writing ... made an attempt at an article and I think more because everybody else was doing it and nobody wanted to be distracted from it! So in the end he did it in spite of himself.” (Secondary school teacher).

This teacher suggested that the information literacy focus allowed the students to separate out “the thinking and the ideas from the skills-based writing” (production skills) and helped to overcome learning barriers they perceived.

Where a focus on information literacy is novel, teacher-librarians and others have the opportunity to provide a better evidential basis for conclusions about learning achievements. Base-line data needs to be collected and the same measures need to be repeated after teaching for information literacy for comparison. Even at this anecdotal level, it was apparent that perceived improvements had a strong motivational effect on development team members. However, this study suggests that methods need to include by-products of the learning activity, not additional tasks for teachers. To ensure that the data *is* collected and analysed systematically, teachers may need classroom assistance in observing how students learn.

Only two teachers did not report positive learning gains for students. In each case, completion of the learning activity had been disrupted by school events that competed for attention. Not surprisingly, these teachers’ enthusiasm was not sustained throughout phase one of the project.

Teaching for information literacy does imply that the students will become involved in, and aware of, information processes and that appeared to be the case in the above examples. However, an interview question revealed that there is a difference between

planning to teach for information literacy and actually doing so.

During workshops, the development team identified specific information literacy objectives and planned specific activities that would support their achievement. Participants reported that it was easy to focus on information processes and skills, but in retrospect, three recognised that they had relied on “environmental osmosis”, rather than explicitly drawing students’ attention to aspects of information literacy. Each thought that learning outcomes would have been improved significantly had they taken personal responsibility and scaffolded acting, thinking and/or feeling in relation to information literacy. In support of this view, two others found that the detailed planning for information literacy development resulted in the weaknesses and strengths of students being highlighted in the classroom. What was surprising was that one of the three teachers who had not taught explicitly had been applying an information skills framework for many years, but had not thought of this before!

Given the assumption that information literacy should be part of every learning activity rather than being limited to those occurring when teacher-librarians are present, the implication is that during collaboration or mentoring, one must emphasise a retrospective ability to answer the question, “What did you actually *do* to bring the target information skills and information processes to student attention?” Articulation of a plan to reduce the level of scaffolding would of course be a valid response, providing indication that it was not simply overlooked.

Essential factors in designing online information literacy resources

In electing to use a web-based environment for self-directed professional development both the limitations and the potential of the medium for enhancing learning need consideration. ICT may give people access to information where and when they require it, but the content and formats must be adjusted to take advantage of the characteristics of the medium. The first factor considered here is the difference between curriculum and professional development online resources.

As mentioned previously, development team discussions identified a weakness in existing online curriculum resources in that they usually include databases of lesson plans that, while valued, often leave pedagogical questions unanswered. They contribute to satisfaction of a need for “a quick fix”, a lesson to use with year 8 tomorrow, but do not aim to develop underlying theoretical understanding.

In contrast, a *professional development resource* offers opportunities for engaging critically with examples of practice and underlying theoretical frameworks, in ways that support teachers in problem solving and decision making to achieve the best outcome possible for their students. This implies considerable depth of information processing on the part of the users, as opposed to simply marketing what has been found in a new setting. Users of *Teaching for Information Literacy* may initially treat it as curriculum ‘fast food’, in which case the range of theoretical and practical models might be an overwhelming banquet that challenges digestion.

The demands of producing the resource for other teachers has prompted participants to significant processing. As a secondary teacher said, the development project encouraged her

“to think more deeply about what I did and to know that there was a lot of theory behind the activities. It was helpful to discuss the ideas and theories with a colleague

before formally planning and teaching the unit.”

The two principals and lead teachers working in pairs also highlighted the benefits of having a knowledgeable colleague on hand. For them, the main challenge was the intellectual one of choosing among information literacy models, and being prepared to articulate the basis of that choice. They reported that having a partner was both a support and a critical stimulus. Thus, two important factors influencing learning for the development team were the depth of reflection needed to meet task requirements and the presence of others, be they teacher-librarians or other colleagues, with whom to share new thinking.

While several of the team chose to apply Moore's (2000) and Kuhlthau's (1991) models in combination, others referred to Stripling and Pitts (1988), Gawith (1988) or Eisenberg and Berkowitz (1990). Connections between these information literacy models and a variety of complementary teaching and assessment techniques were also made, thus demonstrating ways of integrating teaching for information literacy with familiar approaches (eg Whitehead, 1996 and Murdoch, 1988).

Interview data suggest a high level of “ownership” of concepts and teaching methods. Four participants, already skilled in aspects of teaching for information literacy, reported that selecting a model was “liberating”, as was the opportunity to focus on the whole information process or a small part of it as dictated by teaching purposes. This sense of ownership is revealed in a comment from a primary teacher who admitted to years previously setting aside a model of teaching for information literacy because it did not match her understanding of her students' learning. She now reported being able to create some strategies of her own, “to fiddle with what really is only guidelines, I hadn't really seen that before.” The interviewer gained the impression that understanding how and why particular models worked was the well-spring of this teacher's enthusiasm and success in adapting them to her needs. However, engaging with the *Teaching for Information Literacy* resource to a similar extent may be a challenge in a self-directed study situation.

From the evaluation so far, it is clear that the majority of participants find the content of the resource relevant to their needs. Most participants would prefer, however, to see less text and more summaries or bullet points. In view of the development team's comments on thinking, one wonders whether the tight information packages that summaries and bullet points represent could be unwrapped sufficiently for inferential comprehension by newcomers. In other words, is the concept of information literacy one that can be taught using bullet points? Given that many professional workshops, like class lessons, do not require high levels of sustained reading, the use of video clips of resource developers talking about their experiences and working in classrooms might appeal to some users. This does, however, raise some technical issues that suggest that CD-ROM may be a better platform for the resource than the web.

Another factor to consider is that the development team had a clearly identified task that fostered personal learning. Learning activities for users of the resource are less well-defined, as the timeframe for ‘completion’ and contexts for application are self-determined. Users are encouraged to “adopt, adapt or create learning activities” and to evaluate them in terms of results in their own classroom. There are tools to assist them in this, but there is no mechanism for ensuring it happens. This is likely to undermine the effectiveness of professional development. For example, McCahon (1998) found that tertiary students studying at a distance perceived a need for regular assessment to aid them in completing

courses. Thus where there is no assessment and no academic credit, perseverance with study may fail unless it is intrinsically motivated or supported within the professional development goals of schools as a whole. If the evaluation phase confirms a need for assessment, inclusion of a range of clearly defined authentic learning activities and criteria for self-assessing outcomes could be an option for the future.

The website has been structured to take advantage of the medium by providing links at the point of expected need to summaries of underlying theory, and thence to in-depth material on each approach. The evaluation will indicate whether the adoption of the cognitive apprenticeship approach of revealing expert thinking actually prompts examination of underlying theory.

A further critical development factor is the variety of users' purposes for studying information literacy. The development team were introduced to aspects of theory little by little. The online user with little prior knowledge may be overwhelmed by the possibilities. Learning objectives and a suggested order of study are available to those who prefer a structured course. Alternatively, to model an information literacy assessment method, rubrics were developed for self-evaluation and identification of an appropriate starting point. Personal, teaching and professional development activities may not reflect similar levels of information literacy and ICT confidence, thus a set of three-point rubrics was developed for each arena. These describe competencies in terms of a journey that mirrors transition from dependence on direction or modelling by others, to scaffolded performance, to the prompts that are associated with coaching. Verbal feedback during the introductory sessions with evaluators suggests that the language used in titles and descriptors: Just starting out, Escorted journey and Independent traveller, engendered confidence that this resource was at an appropriate level. The ability of the rubrics to direct users to information appropriate to actual needs will be exposed by the evaluation team.

In sum, factors to be considered in the metamorphosis of information literacy education from workshop to stand-alone online environments centre largely on differences between the cognitive demands of the two contexts. The same information must be packaged differently in each and the delivery medium offers different opportunities for conceptual engagement, interrogation and personal support. Further, learning tasks in workshops have clear boundaries, standards for achievement and timelines, but are less well-defined in a self-directed study environment. The learners' purposes are equally varied in both settings, but while the workshop can be highly responsive, the online environment can only be responsive if the developers were able to predict accurately the users' purposes. The material can certainly be packaged for self-directed learning, but the question remains as to whether the manner in which it is done is effective in promoting information literacy among teachers.

Project involvement as professional development

From the beginning, participants in the development and evaluation teams were expected to derive different benefits from involvement in the proof-of-concept project. Learning gains for teachers using *Teaching for Information Literacy* without the evaluation requirement are expected to be different again.

At the time of writing, it is apparent that the 13 week evaluation period is insufficient in some respects. Many teachers are reporting that finding time for the self-directed study is difficult. There have been numerous disruptions to plans, including competing curriculum development initiatives as well as the introduction of the National Certificate in Educational

Achievement. This latter implies a substantial change in the ways secondary schools assess student performance. These events would disrupt the tenacity of any staff using the resource in a self-directed manner and indeed, confirm the predictions of development team participants. However, there are indications that some, mostly primary school teachers, have engaged effectively with *Teaching for Information Literacy*. For example, one initially printed off material, but once engaged with the topic, found herself able to cope with the technological demands. She checked her understanding of concepts with the authors by email, writing in a style that exuded confidence and enthusiasm. Another is reported to have begun to take on a leadership role in the school, encouraging two others and mapping out future action.

Nine interviewees from the development team reported that in the past, despite previous professional development, inclusion of information literacy concepts had been an incidental undercurrent to achievement of other goals. Only three indicated that they usually included information literacy goals in planning with a further two agreeing, but commenting that the cognitive apprenticeship element made this project different. Overall, this project prompted more thoughtful planning and greater attention to the underlying thinking demanded of students than previous professional development involvements. Surprisingly, for one participant, this resulted in less certainty of outcome:

“[Previously] I thought I knew what was going to happen, whereas with this, I wasn’t sure what was going to happen ... with this it was a little bit more uncharted I guess... I knew where I wanted to head, but had no idea whether we would get there ... the children had the empowerment.” (Primary teacher)

From interview data, three factors emerge as important in prompting reflection: having a specific focus, having what one referred to as “good brain space time” and having the opportunity to question and explain thinking. Participating in workshops, sharing ideas and experiencing the enthusiasm facilitated this.

The task of producing written resources was instrumental in prompting learning for developers. However, it is interesting that the writing frame constructed around group-identified information needs, was not used as intended. This appears to be a function of the complexity of the task since in the context of teaching, the needs and responses of students take precedence, not the information needs of users of the resource being created. Although the writing frame was helpful, a collaborative writing context was needed in some cases to ensure that originally identified information needs were met. In other words, those who would be quick to note where students had answered the wrong question or not provided sufficient information, exhibited the same problems themselves. Discussion was needed to assist teachers in moving from a focus on student needs back to professional development needs of their peers. Teacher-librarians, with their greater understanding of information literacy, have an important role in ensuring that effective strategies they and their colleagues originate are used as a professional development resource to create a learning community.

Learning about their students was a key consequence of the project for some developers. One secondary teacher discovered that often students do not know what they need to know at the beginning of a unit “but the key to it is to work backwards from where they have to get to.” Another found that her assumptions about student performance were challenged, as they completed some tasks easily and struggled with others she had thought simple. For this teacher, and two others, the enthusiasm generated among “a mediocre” class of students was very exciting.

Many future goals of participants concerned professional development for themselves and others. School-wide information literacy initiatives were prompted in two primary schools and in a secondary school, the whole science department quickly adopted the tested approach for scaffolding students' research. Participants also reported on implications for library and ICT facility development. In one case, a Principal/lead teacher pair expressed a subtle but important shift in perception. Their focus was not to be "so much on the library environment as on the teaching and learning of information literacy". Professional development activities would reflect this.

That a focus on teaching and learning can affect policy was demonstrated in one school too. Restrictions on printing and downloading were challenged in light of the way children actually processed information from the screen. For example, reading tables and remembering the category of information in each column is not easy for year 4 students scrolling through the information. Comprehension and evaluation for relevance to the current purpose demanded printing which was strictly limited.

Overall, it is apparent that most team members adopted and adapted models of information literacy to their teaching with ease. They were able to focus on common elements of models and apply those where a learning activity did not involve the entire process. Two participants did experience some difficulties in addressing information literacy issues however. One was the secondary school teacher who predicted her enthusiasm would wane. It did so when she encountered a low ability class and found that her workshop experience of providing scaffolding for information literacy success was not sufficient. Had a teacher-librarian been working on site with her, the result might have been different. A primary teacher also experienced difficulty and revealed that despite the planning workshop activities, she had not had clear information literacy goals for lesson planning. These two examples suggest that two and a half days exposure to information literacy planning and teaching is insufficient for some, especially where on-going support is lacking.

In sum, the development team already had experience in teaching for information literacy and intensive workshops enabled most to integrate information skills objectives more effectively in both English and Science activities. In contrast, the evaluation team have had little exposure to information literacy concepts and must fit self-directed study around overloaded schedules. However, this is the common challenge to be overcome in all schools and there are indications that, in some circumstances, participation in the evaluation phase of the project is influencing classroom practice.

Teaching for Information Literacy as a professional development tool

Regardless of the strengths or shortcomings of *Teaching for Information Literacy*, the factor determining its effectiveness lies in the manner of its use. Given the challenges of self-directed study, there is no guarantee that the opportunities such resources offer will be taken, unless someone takes responsibility for leading development activities. For information literacy, the ideal person is the teacher-librarian, but some education systems leave funding of that role to individual schools and there is a broad knowledge gap among other staff. *Teaching for Information Literacy* tries to bridge that gap and draw attention to the advantages of having a staff member with specific responsibility and skills in teacher-librarianship. It is however impossible to predict the effectiveness of the resource in promoting information literacy beyond the limits of the proof-of-concept trial.

Initial reactions of evaluators, particularly to the need to engage with text, raised questions about expectations for professional development activities that were not apparent in collaborating with development team teachers. What level of sustained reading is expected in self-study situations? Can information literacy really be comprehended on the basis of bullet points? Is there a general expectation that one can “do a workshop” and tick off a checkbox somewhere saying information literacy has been “done”? If this is so, will self-study of “information literacy” be put in the “too hard” box?

Conditions under which *Teaching for Information Literacy* is effective will be indicated by evaluators. For example, in one primary school *Teaching for Information Literacy* is being used to complement application of Capra and Ryan’s (1999) *Information Literacy Planning Overview*. At the secondary level, in one school three science teachers are working in association but independently, while in another four are collaborating. In this latter school, each will observe the effects of the same learning activities on different classes. The evaluation interviews and notes will reveal some of the challenges and student learning outcomes for each condition.

However, an alternative approach deliberately draws on the critical success factors of the development phase. In a primary school, a trained teacher-librarian is supporting three new colleagues in their use and application of *Teaching for Information Literacy*. Given the positive experience of a staff member involved in the development of materials, he suggests that at some point the website should become part of the school’s intranet. This would allow staff to gradually extend it with lessons developed from the same cognitive apprenticeship frame of reference. In this instance the intranet serves a cluster of five schools and staff at the lead school would then be able to assist those at other schools. The vision and leadership of the teacher-librarian, the TLR and Principal is pivotal.

Given that many schools in New Zealand are too small to support a full-time teacher-librarian, this cluster based model to share professional development resources and support has much potential to promote information literacy nation-wide. However, this would be strengthened if academic and professional credit accrued to participants.

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National Information Policies – A Comparative Study with Particular Reference to South Africa and School Libraries

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Abstract

The government of South Africa has committed itself towards the obliteration of poverty and to achieve social and economic development. National information policies are used by countries to address these and other problems. A national policy is generally motivated by public and political party concerns and legislation is passed as the best option to meet the ideal set by the government for the issue(s) on hand. Within modern society education can be linked to national development. School libraries form an integral part of the modern approach to teaching and learning. School library development in South Africa is shown to be problematic in a number of ways. Similar problems exist in other African countries. Recommendations are made for the government of South Africa to address these issues in a national information policy. Many other African countries should also address the development of school libraries.

Introduction

The main area of my research over the past five years has been on national information policy with particular reference to South Africa. Part of my paper today is based on some of the findings of my original research. In addition to this I have added further research findings on the subject of this paper as well as some personal observations within the profession based on the time that I worked as teacher-librarian at a school in Pretoria, South Africa. In this paper I describe the situation of school libraries in South Africa and investigate how problems in this field could be addressed within a national information policy.

By way of introduction I explain the role of national policies and how these policies reveal what value governments attach to the issues they choose to address in their national policies. National information policy is explained as a particularly complex type of national policy, due to its many facets.

The main body of the paper is concerned with the situation of school libraries in South Africa.

National policies and the values they reflect

A national policy is generally motivated by public and political party concerns rather than by social, economic or cultural issues, such as education and employment (Sabatier, 1995, p.10).

A national policy is also developed within the political environment as part of governmental activity and is the result of a rational political process. The focus of this process is the interest of the public (Parsons, 1995, p.7). The outcome of such a process of policy formulation may be expressed in any or all of the following:

- (i) the clarifying of public values and intentions;
- (ii) the commitment of money and services;
- (iii) the granting of rights and entitlements (Considine, 1994, p.3,4).

Public policy expressed in any or all of the above three formulations reflects a number of things, such as:

“... what governments should do and what they actually do; what governments actively do and do not do; involves all levels of government; formal and informal actors; public policy is not only limited to legislation, executive orders, rules and regulations; has an intended course of action and goal; both short-term and long-term; it is an ongoing process; it involves decisions to enact law and implementation, enforcement and evaluation; it involves politics and environment.” (Theodoulou & Cahn, 1995, p.49)

Governments respond to the needs of their citizens by passing legislation about areas which fall within their jurisdiction. Legislation is therefore passed whenever it is considered the best option to meet the ideal set by the government for the issue(s) on hand. This legislation can thus be seen as a reflection of the value attached to the issue(s).

Many national policy documents emphasize the link between social and economic development (Hagg, 2000, p.49). The government in South Africa has committed itself towards the obliteration of poverty and to achieve social and economic development (Dilotsothlhe, 2000).

Education and National Development

Within modern society, education can be linked to national development. Education is necessary for the development of skills, which enable the educated to participate and be employed within the economic sector.

The aim of education is to

“... develop a rational, responsible and responsive person; a person who is well-adjusted, can lead a satisfying professional and private life, and participate in society” (Fairer-Wessels, 1990, p.290).

An educated person will generally be literate and able to use information for daily decision-making and problem-solving (Fairer-Wessels, 1990). The achievement of a good education and well-developed levels of information literacy can be facilitated and supported by school libraries. Information literacy can be defined in its broadest sense as

“... a person’s ability to access and understand a variety of information resources.”

Information literacy is an essential intellectual skill required by the modern world. The issue of information literacy is identified by Bundy not as a library issue, but as an educational and societal issue (Tise, 2000, p.59).

School libraries and education

School libraries form an integral part of the modern approach to teaching and learning where the emphasis lies on independent, media-based learning and where textbooks are of lesser importance.

This is also the approach of the new curriculum which is currently being phased into South African schools. However, school library development in the country does not reflect this approach.

School libraries and education in South Africa

School library development in South Africa has been problematic since its inception (Witbooi, 1997). The development of school libraries in South Africa must be understood within the country's history and developments under its previous government and its policy of segregation of its different population groups from 1948 to 1994. Different departments of education controlled formal education in primary and secondary education. This policy resulted in a very skewed education system. Each of the departments of education supported only the media centers within its department, with the result that school libraries and media centers developed in an uncoordinated manner. (Olën, 1988, p.213).

School libraries were introduced in schools in South Africa in about 1950. However school libraries continued to develop unequally despite calls for the cooperation between the various education services.

A brief review of current conditions regarding school libraries in South Africa reveals the following:

- (i) A recent nation-wide survey indicated that eight million out of the 12 million scholars in South Africa do not have access to library facilities at a time when the new resource-based education is being introduced by the Department of Education.
- (ii) Although the Department of Education has been restructured into one department since 1994, limited organization continues to characterize the provision for school libraries and facilities.
- (iii) Library facilities and accommodation are limited and in many instances school libraries are housed in very small areas.
- (iv) The number of full-time school librarians is limited, with most full-time school librarians having to teach other subjects and manage the school library as well.
- (v) In many of the school libraries the library collection is fairly limited due to restricted budgets.
- (vi) There are no school library standards with regard to the minimum standards of the book collection, budget and information requirements that must be addressed (Vermeulen, 1997).
- (vii) The school libraries are often managed by teachers who are not trained librarians.
- (viii) Libraries are often poorly funded and considered of less importance than computer centres to which are more likely to be allocated.

- (ix) The South African government has committed itself to strive to provide e-mail access to every scholar, while failing to set minimum standards for the provision of basic school library facilities to meet the information needs of scholars and teachers.

Vermeulen (1997: 36) describes the situation in South African departments of education as follows:

“... South African departments of education seem to have been paying mainly lip service to modern educational principles. School libraries which are regarded as an essential and integral part of the independent learning process on which modern education hinges, are either completely lacking in schools, under-achieving, or in decline”.

Vermeulen explains that the main reason why the above situation is faced in South African is due to the lack of any official guidelines regarding school libraries.

Government Policies towards School Libraries in Africa

The poor state of school libraries can also be observed in other countries in Africa. School library facilities in other southern African countries are described by Rosenberg in 1999. She found school libraries to be the worst off of all the libraries in many African countries, such as Zambia and Namibia (Rosenberg, 1999). She paints a grim picture of the current state of school libraries in Africa as having been positioned last in the order of priorities. In most instances school libraries in the region either do not exist or are no more than a few outdated books in run-down buildings.

In South Africa and the other African countries where school libraries are in decline, struggling to survive, or non-existent, one may blame the governments for failing to consider access to information as a basic requirement within their education systems.

National information policies and school libraries

Access to information and the ability to use information are areas where school libraries can make a huge contribution during the formative years of scholars in preparation for an information society. A Working Party on School Library Services in the United Kingdom explained the value of a school library to a nation as follows:

“... We believe that the nation will pay a heavy penalty for many years to come if it continues to neglect the self-evident contribution which school libraries could make in producing citizens who are self-reliant, well adjusted, and above all, able to make use of information.” (Olën, 1988, p.232)

The warning expressed in the above quotation indicates that the deficiencies observed in school libraries in South Africa and some of the neighboring countries in the region need to be addressed.

In the process of addressing the deficiencies observed in school libraries in a country like South Africa two questions may be asked:

- (i) How can school libraries be used to address education-related problems in South Africa?
- (ii) How are problems similar to those in South Africa addressed in other countries?

These questions are addressed below in order to find ways and means to address the deficiencies in school libraries in South Africa.

Education and school libraries in South Africa

South Africa is a developing country and has a number of education-related problems. These problems are relevant to this paper as these problems need to be addressed together with the need to meet some basic requirements in the provision of school libraries. I will list the problems and then cover each briefly before moving on to illustrate how similar problems are addressed in other countries in their national policies.

Some of the education-related problems in South Africa are the following:

- (i) the high rate of illiteracy;
- (ii) discrepancies in the level of education and the lack of skills in the population at large;
- (iii) the information content in South Africa and the North-South divide;
- (iv) developments towards an information society are problematic;
- (v) the lack of computer literacy and information technology in a country with great poverty;
- (vi) limited access to telecommunication and the high cost of connectivity due to the monopoly of in the industry in South Africa;
- (vii) copyright issues and a general reluctance to generate own material.

These seven education-related problems are explained briefly in the following paragraphs.

High rate of illiteracy

Approximately 45 per cent of South African adults are illiterate (Macfarlane, 2000). Macfarlane explains that many areas of society are affected by illiteracy, such as:

“... HIV/AIDS awareness, small business development, environmental education, tourism training, parent/child relationships, primary health care, interventions, land resettlements, work-place productivity levels, human rights and democracy education”

(Macfarlane, 2000, p.18)

These issues are all problem areas in South Africa and they could be addressed in a more effective way by a society which is literate. One such area where government action could be far more proactive in addressing problems would be for instance the distribution of written notices to address health issues in areas where rivers are infected by an outbreak of cholera, or in fighting the spread of HIV/AIDS.

School libraries can play an important role in literacy training for scholars by ensuring that the facilities and guidance are in place for scholars to achieve higher literacy levels. High levels of literacy cannot be achieved without guidance and the necessary resources. Certain standards should be set for the provision of information and reading resources in school libraries, each of which should ideally be manned by a librarian who is trained and skilled to facilitate the use of the library material.

Literacy involves the following:

“... the integration of listening, speaking, reading, writing and critical thinking; it incorporates numeracy. It includes the cultural knowledge which enables a speaker,

writer or reader to recognize and use language appropriate to different social situations. For an advanced technological society... the goal is to achieve literacy which allows people to use language to enhance their capacity to think, create and question, in order to participate effectively in society." (Campbell, 1994, p.315).

School libraries could also be used to support evening schools which offer adult literacy classes. Basic literacy training in South Africa requires encouragement and active involvement by all levels of government. A national conference convened by the NGO Project Literacy and the European Union in 1999 established that very little money is allocated to adult education by the South African government. It was stated at the conference that only 0,8 per cent of the education budget of R47,8 billion in 1999/2000 was spent on non-formal education. Most of the 0,8 per cent was spent on young people who failed matric and were attempting the matriculation examination for a second time. The lack of government funding was not helping the country to address the problem of illiteracy. Illiteracy is affecting the economy of the country negatively and should be given priority, just as school libraries should be more valued for their place in education.

Discrepancies in the level of education and the lack of skills in the population at large

The majority of the South African population is poorly educated while a relatively small number of people are well educated. As a result of the generally poor levels of education the majority of the South African workforce is found lacking in skills, with only one in five adults being skilled for the labour market. In this area the school library could once again be used to address the basic educational needs of scholars and adult learners.

The information content in South Africa and the North-South divide

The bulk of South Africa's information is not generated from within the country by the population itself, but originates in the developed countries of the northern hemisphere as most research is conducted and published in these northern countries. The imbalance of information production results in a dependence on information sourced from the developed countries of the northern hemisphere. This phenomenon is often referred to as the *North-South divide*.

The result of this trend is an undue dependence on foreign information sources. This form of information dependence impacts negatively on the number of books and research articles published annually in South Africa (and similarly in other countries in sub-Saharan Africa) in comparison with the rest of the world. In 1991 sub-Saharan Africa produced only 12 per cent of the world's book titles. The lack of a strong indigenous information handling capacity in South Africa and the dominance of the North-South flow of information, and the inadequate production of information in the South caused Africa to be described at the end of the 1980s as a "bookless society" with schools not having books, research being crippled, and African academics being increasingly marginalised.

These conditions impact negatively on education in South Africa and the flow of information, perpetuating a dependence on the countries in the developed world (Lor, 1996, p.1-3). School libraries can, however, foster a love of learning, reading and language skills. Information skills can be nurtured and developed under the guidance of an equipped librarian. Teachers and scholars can benefit from the access to information within the school environment in their school library.

Developments towards an information society appear to be problematic

Both literacy and information literacy are necessary skills required by individuals in order to benefit from the information age (Behrens, 1994, p.312). These skills are also essential in the process of lifelong learning and are beneficial skills, equipping individuals to continue to learn and develop their abilities or skills. In this area the school library can play an invaluable role in the education and training of scholars and other learners.

The ability to learn needs to be fostered in South Africa in order for the country to achieve a better educated and trained workforce, and promote innovative developments and growth in the job market and economy. These developments may help reduce the high level of unemployment.

Computer literacy and information technology in a country with great poverty

Nearly half the population of South Africa lives in extreme poverty and in desperate social conditions. Current government policy for the country's development towards the global economy is to prioritize investment in the information and communication technology sector in order to "bridge the digital divide". This strategy is taken in support of the *Millennium Africa Renaissance Program*, which was launched in 2001 at the World Economic Forum in Davos (Laing, 2001, p.14). Economic development and growth to bridge the divide between the poor and rich nations forms the aim of the *African Renaissance Program* in the participating countries on the African continent. However, the levels of poverty may limit the application of information technology to access information electronically via the Internet, online databases, CD-Rom or other sources.

At the education and school levels the government should reconsider spending large amounts of money on information technology in preference to the developing of school libraries. In this regard the emphasis should not be on the ability to download information which is accessed electronically. Emphasis should be on the ability to assess, evaluate and use information for problem-solving or other applications.

Once again the potential value of school libraries within education in South Africa and else where in Africa becomes evident.

Telecommunication and high cost of connectivity

The current cost of telephone calls in South Africa is relatively high (currently at R0,60 per 3 minutes call). This results in a high cost of Internet connectivity for users of this form of information communication. Despite this, the government favours e-mail connectivity for scholars. This type of connectivity is more likely to be provided within the application of computer studies in computer centres than in the school library. Such connectivity also pre-supposes a reasonable level of literacy. Furthermore, the high cost of Internet connectivity makes it less affordable for school libraries to be given access to electronic-based media resources.

Copyright and the unwillingness to generate original material

Copyright protects the intellectual property of the owner or the creator of original work. Intellectual property is of major importance to the economic growth of a country in the current knowledge based society where "... the keys to job creation and higher standards of living are innovative ideas and the application of technology in services and manufacturing." (The hot desktop debate, 1999, p.37, 38). The importance of intellectual property protection is stressed by Bauer. She points out that intellectual property protection is "... critical to a

country's ability to attract investment". Ignorance or a lack of appreciation of copyright protection is cause for concern in South Africa. This can be illustrated by the losses in trade with the United States of America in 1998 which amounted to R853 million.

Adherence to the requirements set out in the copyright law could be taught within the education system in South Africa to inform teachers and scholars. The school library can play an important role in creating an awareness and understanding of copyright protection, especially in the light of the fact that photocopying is often done in the school library.

The above seven education-related problems are also to a large extent information-related problems. These educational and information-related problems are addressed in other countries by their governments by means of national information policies. The next section explains the findings of a comparative analysis of the national information policies in a number of countries and summarizes the findings of the survey by listing the type of issues addressed in the national information policies in the countries that were included in the comparison.

National policies used in other countries to address problems similar to those in South Africa

A survey was conducted on national information policies in countries in the West, East, Latin America and Africa. The following elements of the policies were identified:

- Policy goals (intentions behind the policy);
- Policy content (manifestations of the policy);
- Policy instruments (institutions who regulate the policy);
- Policy outcomes (positive or negative consequences of implementation);
- Policy styles (processes through which policies are formulated) (Dye, 1995, p.2).

A comparison of this nature is often crude, but can give valuable results. The comparison of the type of issues addressed in the national information policies in the countries included in the study are summarized in Table 1 on the following page. The table lists the issues that are addressed and gives an example of a country where the issue is addressed in its national information policy. The list reflects a trend to address the national information-related issues in a national information policy. This type of policy is introduced by governments in all parts of the world as a measure to address generally more than one issue which is considered of importance by that government. A policy is an expression of the value attached to a particular issue in a country.

School libraries are not specifically addressed in the national information policies of the countries included in this study. However, other related and more broader issues are addressed in national information policies. Broader issues include libraries, access to information, literacy, and the development of an information society. A trend can therefore be observed that governments address issues such as those identified in this paper in national information policies.

Table 1

List of issues typically addressed in national information policies in various countries and examples of applicable countries.

Symbol	Issue addressed in National Information Policy (NIP)	Example of country where the issue is addressed in NIP
A	North-South divide / information dependence / impact on economy	Algeria; Canada; China; Egypt; France; Germany; Netherlands; Papua New Guinea; Portugal; Sweden; Thailand; Zambia;
B	Information content, industrial competitiveness & innovation	USA; Australia; Austria; China; Indonesia; Japan; Netherlands; Portugal; Spain; Sweden; Thailand; United Kingdom;
C	Literacy	Algeria; China; Columbia; New Zealand; Papua New Guinea; Thailand; United Kingdom;
D	Computer literacy	Egypt; France
E	Education / skills training	
F	Information society development	China; Denmark; France; Namibia; Netherlands; Senegal; Sweden; Thailand; United Kingdom;
G	Telecommunication issues	Denmark; Egypt; Ethiopia; France; Mozambique; Netherlands; Portugal; Senegal; Sweden; Uganda; United Kingdom;
H	Copyright	Chile; Mexico; Portugal; USA
I	Industrial property rights	Canada;
J	Government communication	Algeria; Canada; Egypt; USA;
K	Access to information	Australia; Canada; China; Germany; Columbia; India; Indonesia; Japan; Malaysia; Mexico; Namibia; Netherlands; Nigeria; Portugal; Sweden; Thailand; United Kingdom; Zambia; USA
L	Censorship	Nigeria; USA
M	Information ownership	Canada; Chile; USA
N	Freedom of speech	Canada; Ghana; Namibia; USA
O	Privacy	
P	Intellectual freedom	United Kingdom
Q	Other (such as libraries, reading, books, culture,	Argentina; Australia; Columbia; Denmark; Germany; Indonesia; Mexico; Peru; Portugal; Senegal; United Kingdom; Zambia

National information policy and school libraries in South Africa

School libraries are generally accepted to form an integral part of the modern approach to teaching and learning. However, school libraries are either inadequate, in decline, or totally lacking in South African schools. The government has no basic standards or procedures for this type of library in South Africa nor has the Department of Education.

Other problems are also observed within education in South Africa. Examples of these problems concern

- the *North-South divide* and the problem of information dependency;
- the different levels of education and the lack of skills in South Africa;
- the information content in South Africa;
- the difficulties concerning the development of an information society;
- problems concerning computer literacy in South Africa;
- copyright and intellectual property need to be respected.

These education problems are all information-related problems. A summary of a comparative analysis of the main issues addressed in national information policies in other countries is used to illustrate a trend concerning this type of policy. It shows that similar information-related problems are addressed in the national information policies in other countries.

Conclusion

In conclusion it is therefore recommended that the South African government address the information-related problems discussed in this paper and also introduces a formalized policy regarding the development of school libraries in South Africa.

If the government is truly committed to its expressed policy that it wishes to develop an information society in the country, its policies should reflect similar values. The government of South Africa should observe world trends with regard to national information policies and pay attention to the country's national information-related problems which should be addressed. One such problem is the need for a school library in each school in the country. As long as the South Africa government fails to address this issue, it will be failing to ensure the successful provision of sound education facilities in the country's education system.

The ideal scenario is for each school in Africa to have a school library. If the governments in all the African countries would make this part of their national policies they would indeed be laying the corner stone of the African Renaissance. It is imperative for the whole of Africa to become an information society in anticipation of the emerging knowledge society.

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Online Library Systems for Malaysian School Libraries: An Experimental Approach

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Abstract

This paper describes the development of two experimental school library information systems for Malaysian schools. The results of a user study, conducted using different sets of questionnaire for both types of schools indicated that students in general, borrowed books from the library by browsing the shelves. Students seldom used the catalogue card for searching and only a small percentage reported that they were able to find the books successfully using the catalogue card. Based on the findings, a conceptual model of the prototype automated catalogue was developed - Virtual Library for use in primary schools, and ELIS for secondary schools. Both systems are divided into two main modules, the Administrator and the User module. User acceptance test showed that the majority of students found the systems user friendly. Students were also successful in the search tasks given. A high majority described the graphical user interface to be attractive and simple. This indicates the feasibility of using the systems for school libraries in Malaysia.

Introduction

Schools worldwide have been adopting computers for classroom instruction since the early seventies, however little research has been done to address the questions of how to automate school libraries for students in ways concordant with their learning, cognitive development and curriculum. This leads to the need to understand more about children's information seeking abilities in order to design information retrieval systems that could be used effectively and enjoyably by children from a wide range of background, without prior computer experience and without any training in the use of the system (Borgman, et.al. 1995).

Professional literature and texts on children's online information seeking behaviour indicated that they lack retrieval skills. Students tend to have minimal typing skills (Drumm & Groom, 1999), and they typically "hunt and peck" on the keyboard for the correct keys when they issue a search (Borgman, 1995). Hooten (1989) identified accuracy in spelling, spacing and punctuation as a significant problem in primary school children. Siegler (1991) stated that children are often confused with the workings of Boolean logic. Other skills that most children lack include the ability to extensively browse alphabetical displays which is age-related, with older children performing better (Edmonds, Moore & Balcom, 1990) and inadequate subject vocabulary, that is children may not be articulate with the subjects used by

the catalogue, making it difficult for them to use appropriate terminology to match the index terms used for the catalogue (Moore & St. George, 1991). These factors have shown that the current available online catalogues did not meet children's need, ignoring their cognitive developmental level.

One factor that could alleviate some of the user difficulties with current online retrieval system is the manner of interaction between the users and the systems. The primary requirement is the visual element. (Borgman et.al. 1995). Text output with visual objects on the computer screen better describes the result of operation and enable users to be competent in performing their tasks (Al-Hawamdeh, 1995). Clements (1995) identified that an ideal information retrieval systems for school children should often involve 'hitting a single key or any key as responding to icons representing subjects on the screen' and have menus and help at all level of searching. In order to ascertain that these features can be applied within local context, catalogue use and book searching behaviour of students was carried out prior to the development of an experimental library system for use in Malaysian schools.

Objectives

The objectives of this paper are threefold. Firstly to describe the findings of a survey which sought to find out students' computer skills and how they searched for books borrowed from the school library. Secondly to describe the prototype developed as an automated catalogue for the school library. Thirdly, to describe the students' responses when using the automated systems.

The Survey

Two surveys using different sets of questionnaire for both primary and secondary schools were conducted. The first survey conducted at three primary schools in Kuala Lumpur, used a sample of 30 students and was carried out over a period of three days. Subjects comprised children in the 8 to 12 year-old age range with a more or less equal divisions of girls and boys. They were ethnically and culturally diversified. The second survey involved 40 samples, consisted students from Form 1 – Form 6. The first school (18 students) is currently using an automated library system, whereas 22 respondents from the second school reported that they have not used online catalogue before since their school library is not automated. Samples were selected from classes visiting the school library at the point of the visit.

Both surveys used the questionnaire method to obtain the information needed. Three questions were of particular interest in this survey:

- a) What is the students' frequency of library use, computer skills and knowledge of online searching?
- b) How do students search for books in the library?
- c) What are the design considerations in constructing an interface for both primary and secondary school students?

Both questionnaires, although differently constructed, have two parts. Part A aimed at finding out respondents' background, frequency of library use, library skills, computer skills and knowledge of online searching. Part B aimed to find out the searching skills of respondents in finding library books through the available card catalogue system, and their views of the system.

Results

Part A of the Questionnaire

Primary schools

- a) Frequency of library use – The majority of students (76.7%, 23) visit the library more than once a week; 16.7% (5) visit the library once a week and only 2 students (6.6%) visit the library once a month.
- b) Reasons for visits – Seventeen (56.7%) visit the library because they were taken there by their teachers, 10 (33.3%) went to the library to read storybooks and 3 (10%) reported visiting the library to borrow books.
- c) Means of finding books – About 93% (28) obtained books by browsing the shelves, while only a small percentage asks the teacher-librarian for help to search for books.
- d) Success in finding books – About 87% (26) reported getting the books they want, and only 13% (4) reported otherwise.
- e) Types of problems faced when finding books – all reported “books are not on the shelves”.
- f) Language Fluency – A high majority (96.7%, 29) are fluent in both Bahasa Malaysia and English Language.
- g) Computer Usage – all students have experiences in using computers.
- h) Keyboarding skills – 56.7% (17) reported that the keyboard is difficult and confusing to use. However the majority (93.3%, 28) indicated that they were more familiar with mouse use.
- i) Knowledge of keyword search - all students did not know about keyword search.
- j) Knowledge of Boolean operators – results indicated that Boolean operators are foreign to the students.

Secondary schools

- a) Frequency of library use – 40% (16) visit the library more than once a week; 50% (20) visit the library once a week and only 4 students (10%) seldom visit the library.
- b) Reasons for visits – 65% (26) use the library to obtain references; 15% (6) go to the library to do their homework; 15% (6) reported visiting the library to read storybooks; while 5% (2) indicated “follow friends” as reason for visits.
- c) Means of finding books – 40% (16) obtained books borrowed by using the catalogue card. Others normally browse the shelves.
- d) Success in finding books – More than 75% reported not getting the books they wanted.
- e) Types of problems faced when finding books – Books on the shelves in disarray constitute the main reason for search failure.
- f) Language Fluency – Respondents seems to be more fluent in Bahasa Malaysia (70%, 28) than in English.
- g) Computer Usage – All respondents are computer literate.
- h) Keyboarding skills – All respondents know how to use computer keyboards.
- i) Knowledge of keyword search – Half of the respondents indicated that they did not know what keyword search means.
- j) Knowledge of Boolean operators – Only 2 students indicated that they knew about Boolean operators.

Part B of the Questionnaire

Primary schools

This section aimed to find out the searching skills of respondents in finding library books through the available card catalogue system. All respondents (66.7%, 20) from the first

and the second school have had the experience using the catalogue card. The respondents from the third school reported not having explored the catalogue card before since it is not available in the school library. The frequency of using the catalogue card is quite low – 50% (15) of the children are not using it, 30% (9) reported seldom use it, 13.3% (4) chose sometimes, and only 10% (6.7) replied always. The survey found that “Title” is the most popular catalogue approach (56.7%, 17), followed by author (30%, 9) and subject (13.3%, 4).

To understand the mental search strategy used by the primary school students when searching by ‘Author’, they were asked to indicate their selection of author’s name. The majority of the students chose the direct form of name – 96.7% (29) used ‘Osman Bakar’ (only one child chose Bakar, Osman or Bakar) and 86.7% (26) used ‘Arthur Clarke’ (the rest chose “Clarke, Arthur” or “Arthur” or Clarke”). Students were also asked on the appropriate search approach and search terms that they would use to search for any books. Results indicated that most children were able to use the author catalogue approach, (e.g. all books written by Enid Blyton) however they were confused in whether to use the title or the subject catalogue approach (e.g. “all books about Gunung Ledang” and “all books about mountains”).

According to the 12 children who have had the experience using an online catalogue, 75% (9) found that it is easy to use, 16.7% (2) quite easy and 8.3% (1) replied quite difficult. The majority of them prefer using the online catalogue to the catalogue card system with the reason that searching online is faster and easier. Finally, the features that the children would like to see in an online catalogue, ranked in order, are “searching without typing required”, “display library news and announcements” and “attractive and colourful graphical user interface”.

Secondary schools

This section sought to find out the potential of using an automated system; the features and the design consideration in constructing an interface for the system. All 18 students from the school that is currently using an automated library system indicated that searching for books by typing the search criteria is not difficult. Sixteen students prefer finding by subject, followed by keywords, title and author, while the remaining two would search by title, followed by subject, keywords and author. All of them indicated that they prefer using the automated system to the catalogue card. When asked to list the features that they would like to see in the current system, some of the responses were “book availability”, library announcements, school/library events, and use of icons and buttons, mailing and printing capabilities.

All respondents (22) from the second school reported having used the catalogue card to search for books if the titles or authors are known. However the frequency of using the catalogue card is quite low – 80% of the respondents are not using it frequently. They prefer browsing the shelves and indicated that they find the books by remembering their location on shelves. If given a choice, all respondents said that they would like to search for books using an automated system.

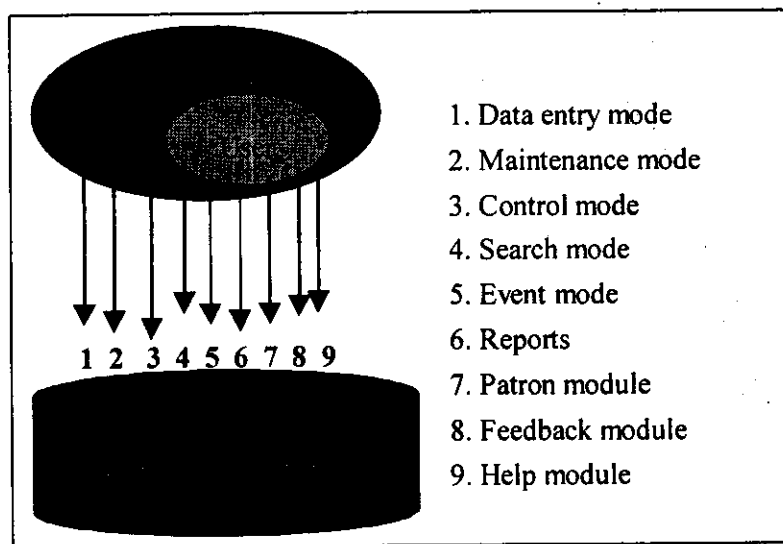
Implications

- a) Younger children are more oriented toward browsing and find the mouse to be exceptionally easier to use than keyboard. Various browse types of search methods should be presented in an online catalogue.

- b) Cataloguing practice adopted by most libraries to invert Western names is perhaps “incomprehensible” to Malaysian children. Therefore catalogues for children must allow for access to author’s name in its direct order, as this is the ‘natural’ way young children search for this information. For those who are used to the ‘standard’ way, access should be given to the second element of the name.
- c) Access through the title need to be enhanced so that children can either search for the title as whole or each word in the title.
- d) Access through the subject mode need to be enhanced allowing search of every word in the subject field.
- e) Older children may be more adept at keyword searching. Therefore an expert mode of searching should be incorporated, allowing the experienced users to refine searches with Boolean Operators.
- f) Design of the system and its interface should be user friendly, easily understood by all level of users, consistent, simple and attractive.

Based on the findings from the two surveys, a conceptual model of the prototype automated catalogue, Virtual Library and ELIS was developed (Figure 1). The model indicates that both systems are divided into two main modules – the Administrator’s module and the User’s module

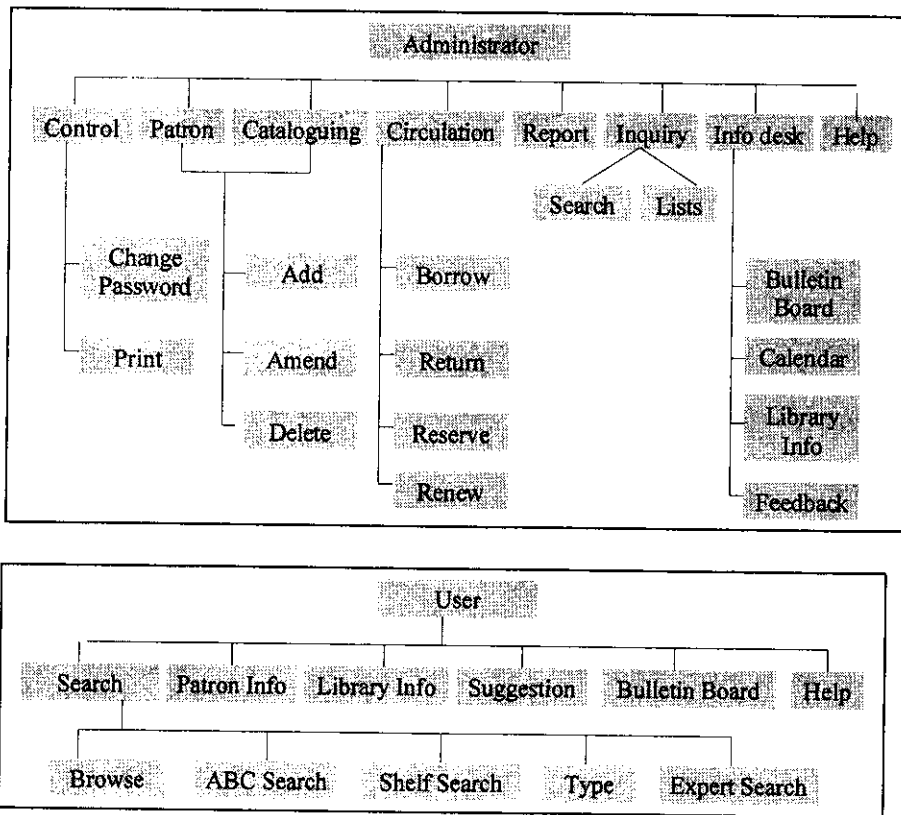
Figure 1: Conceptual Diagram of Virtual Library & ELIS



Virtual Library – A Graphical Online Library System for Primary Schools

The Administrator’s module allows teacher librarians to perform the following basic functions: a) to enter, amend and delete item or patron records and library events, b) to update, backup and compact the database, c) to print records entered. Access into the Administrator’s module requires a password. The User’s module allows users to a) search for library items, b) view library events and announcements, c) send comments or suggestions to teacher librarians. Virtual Library keeps all relevant data in a Microsoft Access database. The database is then linked to Visual Basic 6.0 applications to perform functions such as editing and adding records via designed worksheets and menus. Figure 2 and 3 describes the provisions given under the Administrator and User Module.

Figure 2: The Administrator's Functions Structure Chart



Figures 5 and 6 presents the main screen for both modules with the options provided in the main menu.

Figure 5: Administrator Main Screen of Virtual Library

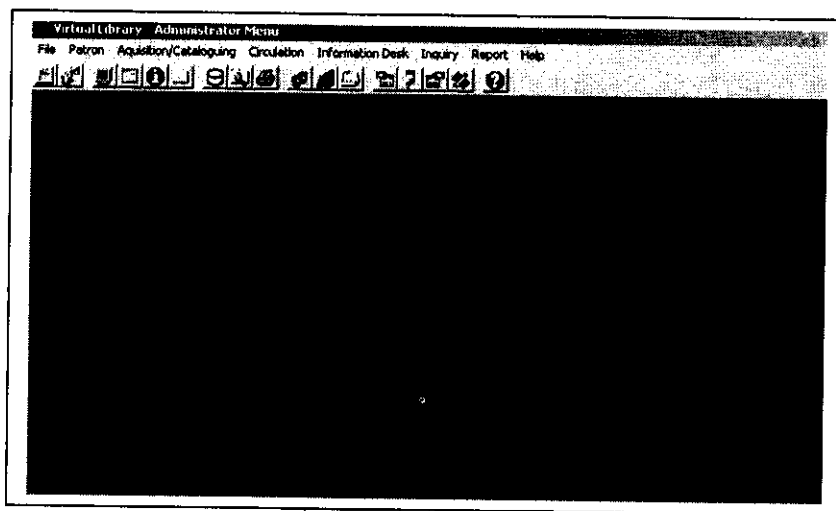
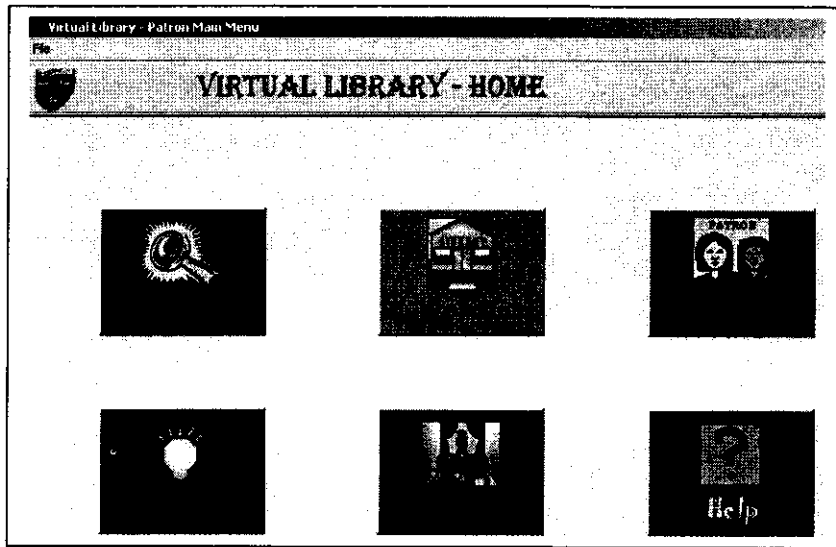
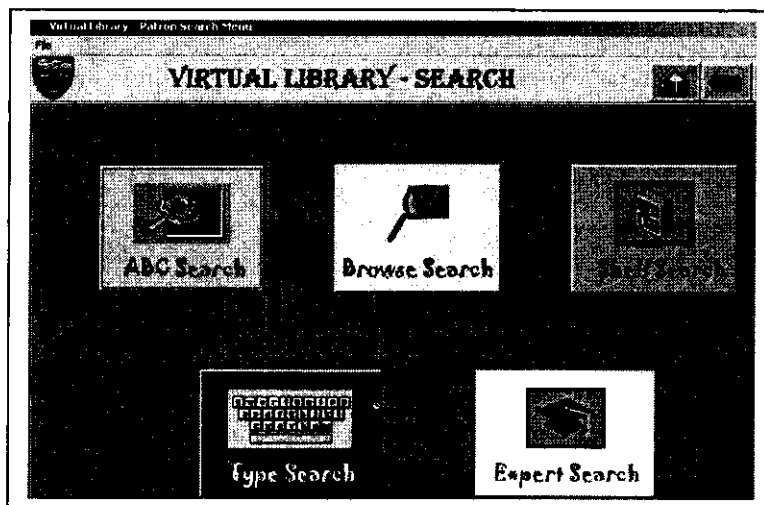


Figure 6: User Main Screen of Virtual Library



Virtual Library provides five methods to search the library's catalogue – ABC search, browse, shelf search, type search and expert search. ABC search, browse and shelf search are designed for children who are not adept at keyboarding skills, or at conceptualizing searchers. The point and click interfaces guide the children in their searches. ABC search lets children find information on authors, titles or subjects of their interests by alphabets. Children only need to identify the first letter their topic begins with, then browse the buttons provided. This type of interface is very productive for children who have word recognition capabilities. Browse allows children to browse the catalogue by subjects. The shelf search allows children to review library items shelved on either side of a call number, just as if they were standing in front of a bookshelf and browsing at the stacks. Type search is for children who have keyboarding skills. An expert mode of searching is also incorporated, allowing the older children to refine searches with OR and AND Boolean operators. Figure 7 presents the search screen with different searching modes for different levels of users.

Figure 7: Virtual Library Search's Screen



ELIS – An Electronic Library Information System For Secondary Schools

ELIS is a complete integrated library system and has the following functional requirements: Acquisition, Cataloguing, Circulation, Online Public Access Catalogue (OPAC), Bulletin & Feedback, Maintenance and Reporting. The Administrator's module allows teacher librarians to access the entire system. Users can only access the OPAC and Bulletin & Feedback. Figure 8 and 9 describe the provisions given under the Administrator and User Module

Figure 8: The Administrator's Functions Structure Chart

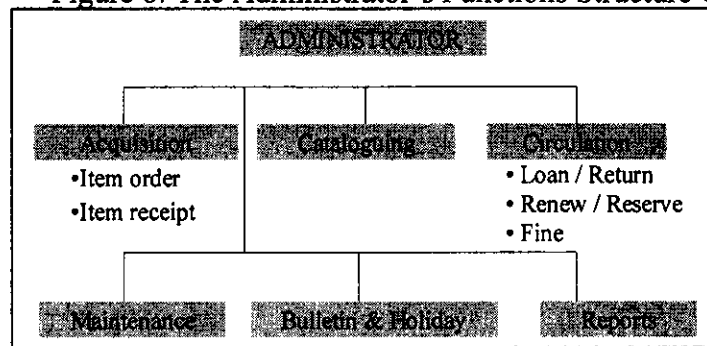


Figure 9: The Users Functions Structure Chart

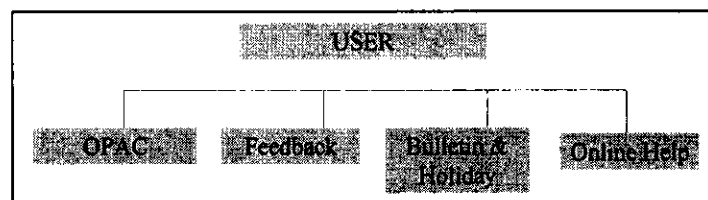


Figure 10 presents the main screen for ELIS. On a successful login, the initial ELIS window below will be shown.

Figure 10: Main Screen of ELIS

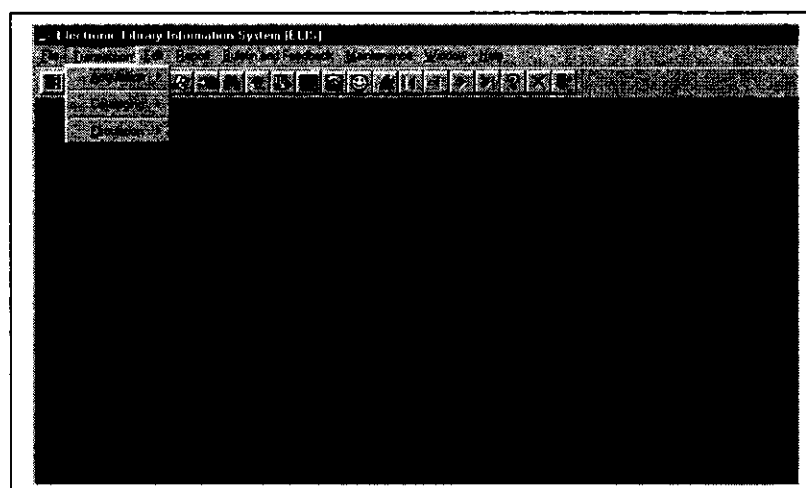
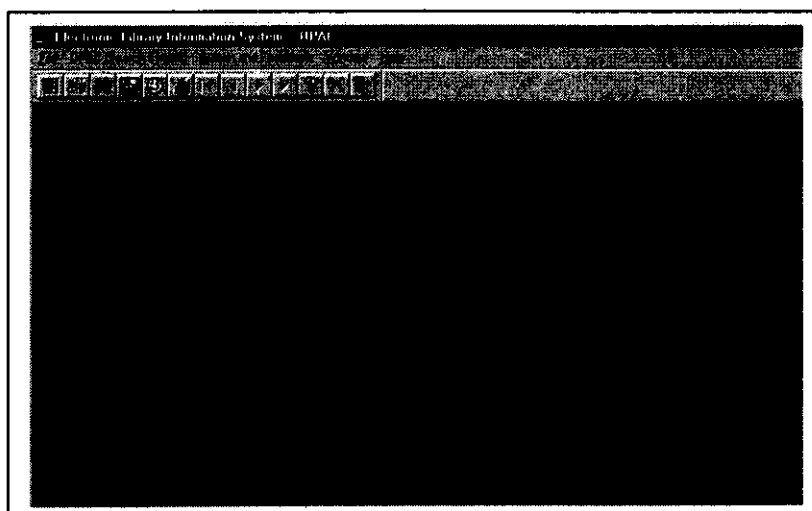


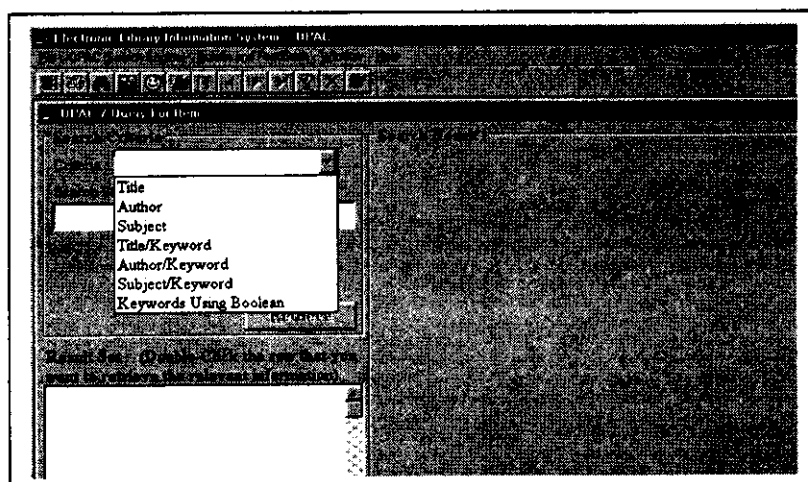
Figure 11 presents the user main screen for ELIS. Password is not required to access the User's Module.

Figure 11: User Main Screen of ELIS



ELIS provides several search criteria suitable for both novice and expert users to search the library's catalogue – by Title, Author, Subject, Keyword in Title, Keyword in Author, Keyword in Subject and Keywords using Boolean. Figure 12 presents the Search Window with the available search criteria in a pull-down menu. To view a specific search result, users may double-click the saved search in the result set. ELIS's OPAC not only allows students to search the catalogue database in order to see if the library holds a particular item and to be informed of its location, but also informs users if the item is currently on loan, since the catalogue system is linked to the circulation system.

Figure 12: ELIS's OPAC



User Testing

Participating in the user acceptance test were 10 students who were non-randomly selected through a voluntary process. The participants were not involved in the initial survey. Each participant was interviewed with the researchers filling out the questionnaire based on the responses. A dummy database consisting of about 60 records were tested by 4 primary

school students (for Virtual Library) and 6 secondary school students (for ELIS). Questionnaires only focused on the Search function for both systems.

In general, all participants found the system easy to use and they indicated they understand the language used for the system (English). Primary school students found Virtual Library's screen design to be attractive. All 4 children were successful in the search tasks given. They indicated preferring the Browse mode most. Secondary school students on the other hand had difficulties understanding some of the buttons and words used in ELIS, such as 'execute' and 'retrieve'. Two students indicated preference for Bahasa Melayu to English as the language of the system. However, none of the participants gave a negative rating to the systems.

Conclusion

Virtual Library and ELIS seem to be effectively used by students. As both systems are prototypes, they cannot be used as yet in real situations for a number of reasons. First they have not been tested with a larger set of sample bibliographic records. It is estimated that a database of about 2000 – 3000 records need to be used to find out whether all modules continue to function smoothly.

Although Virtual Library and ELIS would be able to run smoothly, there is still much room for improvement on both. The possible future enhancements include the ability to support bar code scanner as the input device for data entry, the provision of interactive Help and the ability to convert the shelf list to MARC format.

Both systems are experiments in using a graphical-based library catalogue, which is an alternative to the commercially available online catalogues for school libraries. The experimental development of such a prototype is thought necessary to find out its usability by students and to form the basis of designing a working browser. It indicates the feasibility of using the systems, in the near future, for the information retrieval needs of students in Malaysian school libraries.

Acknowledgements

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Automating Secondary School Libraries: A Web-Based Library Management System

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Abstract

This paper describes the development of a web-based school library management system for secondary schools in Malaysia (WBSSLMS), which aims to provide an effective and efficient way of acquiring, cataloguing, searching, retrieving, downloading and maintaining of library materials. The systems operates in a consortium where secondary school libraries can participate as members to share information resources and still maintain separate library databases. Information gathered from various literature, on-site visits to school libraries, brainstorming sessions with teacher-librarians and observation on the present systems used, have helped produce ideas in designing and implementing the systems. WBSSLMS consists of seven main modules and each is basically targeted to three types of users; i.e. students, teacher-librarians and systems administrators. Any computer, regardless of its operating system, could access any of the modules as long it had Internet access and a browser. The modules are Registration, Acquisition, Cataloguing, Online Public Access Catalogue (OPAC), Circulation, Maintenance and Information Management.. This paper also presents the strengths and limitations of the systems, and also the possible future enhancements. User acceptance tests showed that a high majority of respondents found the systems easy to use. They also found that the modules are complete and have an appealing interface. It is foreseen that WBSSLMS has met the requirements to meet the needs of a library automated systems, as well as a management information systems.

Introduction

Professional literature contains many statements about the value and benefits of school library automation. The reasons given for automating a school library range from the practical to the philosophical, and cover aspects such as school library management, school and library efficiency, curriculum support, information access, information skills instruction, public relations, facilitating collaboration, and promoting equity. The research literature reinforces the value of school library automation. While it is not possible in the context of this article to provide a comprehensive overview of the research, some such studies of the work of the teacher librarian, and of students information retrieval activities, suggest that the effects of school library automation are indeed generally positive.

On-site visits to many school libraries in Malaysia revealed the state of library catalogues in these schools: out-of-date card catalogues, unfiled catalogue cards, and cataloguing of questionable quality. At present, school library systems in Malaysia are mostly stand-alone, turnkey products based on the personal computer. Library functions are often not integrated. School libraries in developed countries on the other hand are reaping the benefits of recent developments in the computer and library automation industries with the development of PC-based client/server. Most systems are moving from PC-based to the web-based library system as a result of the widespread use of the Internet and the World Wide Web. Powerful but relatively inexpensive servers make it possible for school libraries in Malaysia to have the same systems as larger libraries or consortiums. With the advent of information technology and communication, and in the light of the Smart School concept, there is a need for school libraries in Malaysia to meet a certain qualifying condition in order to provide better services to the users. The conventional way of having to achieve information in physical condition (e.g. having to search in the library itself) no longer applied to the modern society. With the national vision to achieve a developed country status by the year 2020, school libraries too have to enhance themselves by providing an easier, faster, safer and convenient access to the users.

The objective of this paper is to describe the development of a web-based school library management systems for secondary schools in Malaysia (WBSSLMS), which aims to provide an effective and efficient way of access to the library utilities and ease of use among authorized users. The systems operates in a school library consortium where secondary school libraries can participate as members of WBSSLMS to share information resources and still maintain separate library databases. Succinctly stated, a consortium means having at least two libraries, linked via a telecommunication network, using the same hardware platform and library application software, and often includes the sharing of data files. This leads and encourages collaboration and resource sharing among participating members to ensure that students receive excellent and up-to-date library services and have access to the world of information.

Objectives of the Web-Based System

WBSSLMS is developed with the overall objective to provide an effective and efficient way of acquiring, cataloguing, searching, retrieving, downloading and maintaining of library materials. The system is developed with the following specific objectives:

- a) To establish a consistent and user-friendly graphical user interface for the ease of use to target users
- b) To establish a secure login system limited to only authorized users.
- c) To enable easy and fast information retrieval from the library database through online searching.
- d) To allow for different types of searching strategies for different types of users.
- e) To provide a search function for the teacher-librarians to verify the existence of an item in the library before acquiring the item.
- f) To provide better maintenance of the library's database for teacher librarians to add, update or delete data.
- g) To establish a sharing environment among members of the school library consortium.
- h) To enable downloading of information from one database to another.
- i) To establish an easy and understandable help system to guide users how to perform a specific library function online.
- j) To enable access to the system 24 hours daily.

With the specific objectives in mind, the functional requirements of the system are determined and further described in the following section under analysis of the systems requirement.

The Framework For WBSSLMS

The development for WBSSLMS follows along the five phases which is described in full in this section.

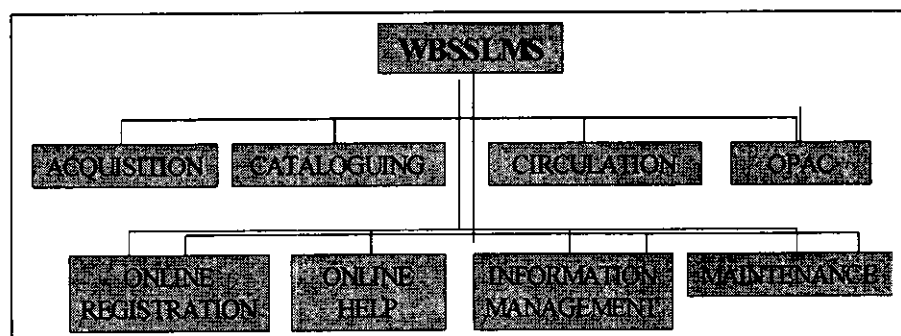
1) Problem identification

Information gathered from various literature, on-site visits to school libraries, brainstorming sessions with teacher-librarians and observation on the present systems used in school libraries, have helped produce ideas in designing and implementing the systems. On-site visits to school libraries in Malaysia revealed that the majority of school libraries are still being managed the conventional way. Teacher librarians feel that they are overloaded with a lot of paper work and they have difficulties in fulfilling the needs of users especially with the manual cataloguing and searching systems. Out-of-date card catalogues and unfiled catalogue cards, and cataloguing of questionable quality are the common complaints. Time required to process the library materials is extremely high. Teacher librarians often have to stay back after school or even work on Saturdays in order to meet the milestones of performing the required library tasks. Discussions with students also indicated that they have problems searching for books and often they could not find the books they want. Most of them, when asked, felt that there should be a better, convenient and more advanced way of getting the required information from their school library. Discussion with teacher librarians and observation on the systems used in school libraries also revealed that there has not been much major success of the systems used at present.

2) Analysis of the systems requirements

Based on the analysis of existing library systems and on the objectives of WBSSLMS, the functional and non-functional requirements of the new system are determined. A functional requirement describes an interaction between the system and its environment. It is a statement of services that the system should provide, how the system should react to a particular input and how the system should behave in particular situations (Sommerville, 1995). In other words, the functional requirements of WBSSLMS are the library functions that the system needs to provide in order to fulfill the user's requirements. Figure 1 describes the major functional requirements for the system.

Figure 1: The functional requirements of WBSSLMS



The Acquisition Module is designed specifically to manage library's vendor information and purchase orders. Since this module is fully integrated with the Cataloguing Module, it allows downloading of data from the Acquisition to the Cataloguing Module. This feature avoids duplication of data entry.

Cataloguing module enables searching, downloading, updating records and adding new records into the library database. After conducting a search at any participating libraries, teacher librarians can select bibliographic records and download them directly to their database without having to key-in the information themselves. This speeds the availability of items to the library users. It also eliminates cataloguing of questionable quality.

Check, renewals, reserve and patron information are all included in the cornucopia of options for the circulation module made available to the joining school libraries. Users are allowed to renew the borrowed item and reserve any particular items in the library holdings from home. The systems used in school libraries at present lack this function.

The web OPAC enables users to search the school library catalog from home either by using simple or advanced search. It also enables users to perform a particular search on all libraries that join in the consortium. Users may perform basic searches i.e. search the collection by the following fields - title, author, subject or keyword. In advance search, users can specify that the document records must contain all of the words that have been entered, any of the words that users entered, or the exact phrase that users entered, for any of the fields.

Online Registration Module registers new users – 24 hours daily. Schools, students, teachers and teacher librarian may sign in as members under this module. To keep track of the users records and for security reasons, new users must register themselves when they are first introduced to use the system. This module also allows login into the database and the system. Only authorized users are allowed access into the system.

Online Help provides information to users on how to use the system as well as assists users in performing a particular library function in any of the modules. Information Management Module contains FAQs and information about the participating schools. GUI-interface report utilities in this module increase opportunities for school libraries to customize both their overdue notices and their statistical reports.

Maintenance serves as the back-end system where only authorized users will have access to this module. This module maintains user and item records. Administrators are able to add new users and items, modify information in the database and also delete obsolete records.

A non-functional requirement describes a restriction on the system's performance that limits the choices for constructing a solution to the problem (Pfleeger, 1998). The followings are the constraints under which the system must operate and the standards which must be met by the system.:

- a) User-friendliness – the system has a user-friendly interface in order to ease the users' usage of the system and to reduce the learning curves of the users.
- b) Speed – The response time is within a reasonable interval time. Users will not be kept waiting for a long time for the search results.

- c) Reliability – The system is reliable in performing its functions and will not cause unnecessary downtime of the accessed environment.
- d) Flexibility – The system has the flexibility to be changed to meet various user requirements
- e) Robustness – The system is robust enough to handle an anticipated or unanticipated error.
- f) Correctness – The system satisfies the specifications and fulfills the needs and objectives of a secondary school library.
- g) Modularity – The system is broken down into modules of functions to facilitate maintenance and future enhancements.
- h) Security – Security measures are implemented to prohibit unauthorized access to the administrators and teacher librarians modules.

3) System design

In WBSLMS, the system design process ensures that the system developed meets the requirements effectively and efficiently, as well as satisfies the needs of the users. The system is divided into three entities, namely user, teacher-librarian and administrator. Each of these entities performs different system functions. The entities are structured to the connectivity with the modules or library functions.

User is the name used to represent the students, teachers, teacher-librarians and system administrators. They are the users of the system, and they will perform functions such as new user registration and login to the system, online searching, online renewal and reservation of books, and online help. The teacher-librarians have more functions to perform under the teacher-librarian entity - cataloguing, acquisition, circulation (loan and return) and fines. The administrator is responsible for the database maintenance and this include functions such as adding, modifying and deleting files in the database, as well as in the information module. Figure 2, 3, and 4 describes the structured chart of three entities with the respective modules.

Figure 2: Structured Chart for WBSLMS's User Entity

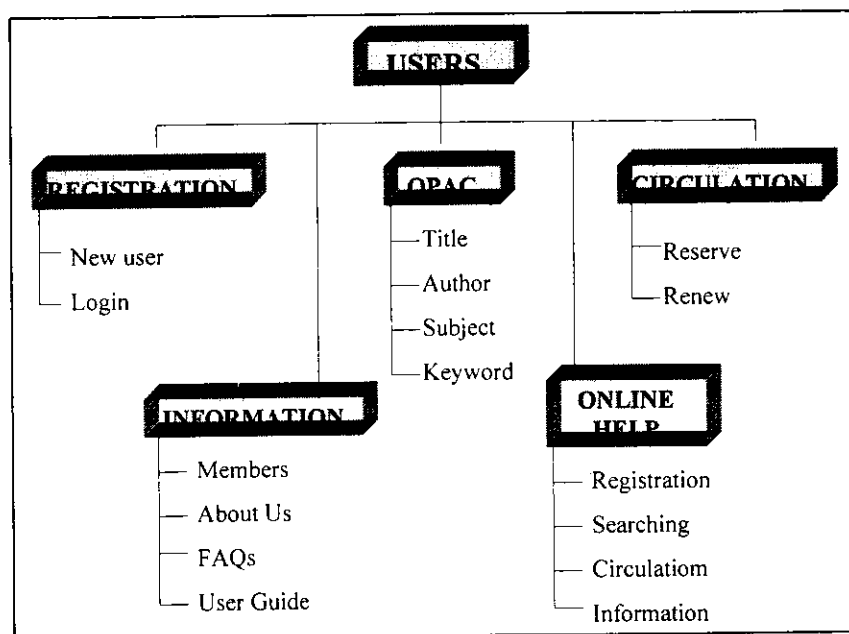
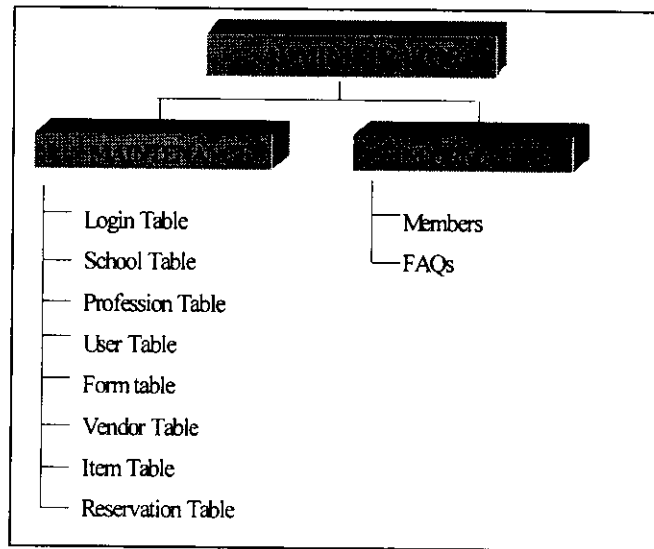
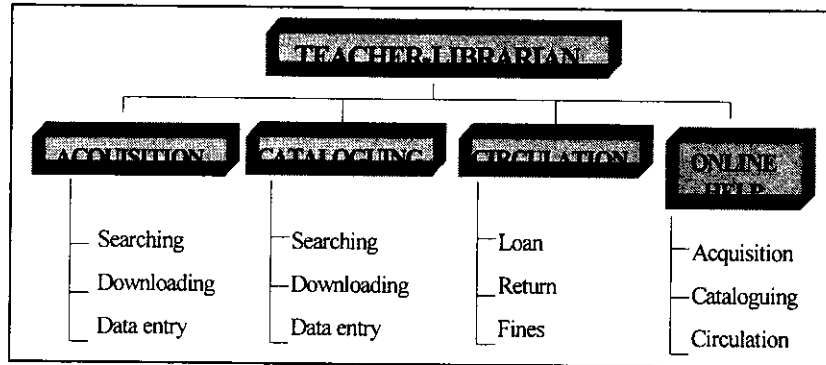


Figure 3: Structured Chart for WBSSLMS's Teacher-Librarian Entity



4) System implementation

System implementation is the construction of the application and the transformation of the design into a feasible and workable product. It is a stage of developing WBSSLMS based on the specified requirements. The system is developed using the following tools:

- Microsoft Windows 2000 for the operating system
- Microsoft SQL Server 7 for the database
- Microsoft Visual InterDev 6.0 as the web application tool
- Internet Information Server for the web server
- Internet Explorer 5.0

The most prominent characteristic of online catalogs is their ease of use. User-friendly and appealing interfaces will motivate students to interact with the system and to browse through and play with information in a way that naturally tends to improve their information skills. Each function in WBSSLMS is arranged systematically on the left side of each Web page, as well as at the menu on the administrator's page to give the web site a structured appearance. Colors used are carefully coordinated, graphics and images are used where possible in order to liven up the pages. Animated graphics are minimized so as to give the web site a clean, professional look, as well as to reduce the time needed to load the web pages. Figures 5, 6 and 7 presents WBSSLMS's Main Page, interface for both teacher-librarians and administrator, and interface for normal users.

Figure 5: WBSSLMS's Main Page

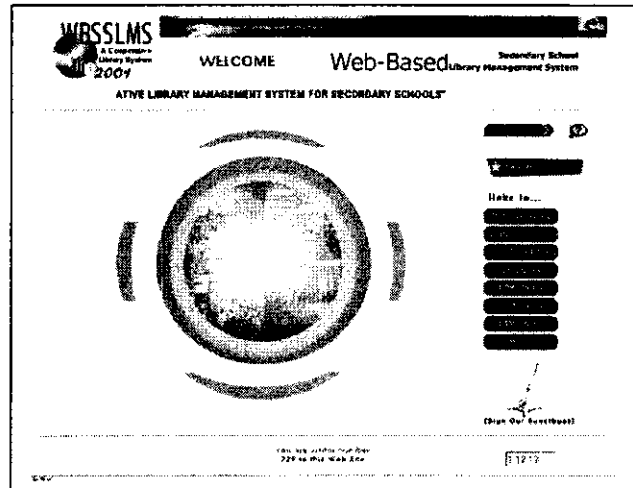


Figure 6: Interface for teacher-librarians and administrator

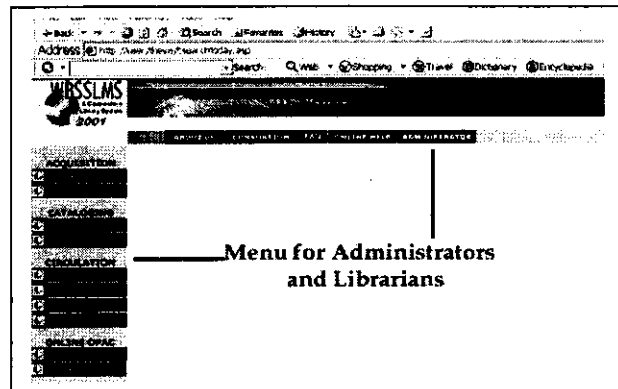
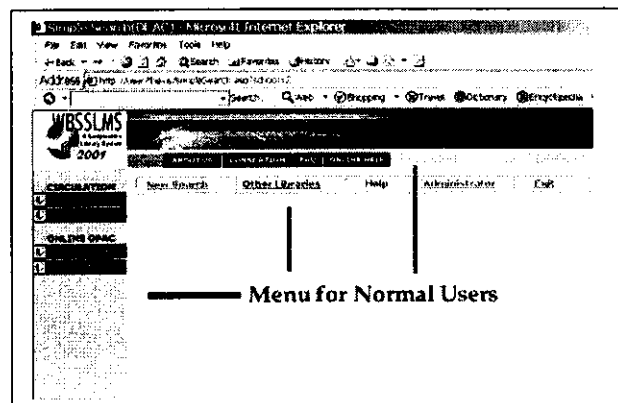


Figure 7: Interface for normal users



5) System testing

A large system like WBSSLMS involves several types of testing. Unit testing, module testing, integration testing and system testing were conducted to ensure that the system is developed according to its specification, and every function implemented in the system worked correctly as expected. In addition, several computers were used to access the

system simultaneously in order to test the scalability of the system. It was found that the system runs smoothly without much complication and has achieved the scalability requirement. The system has the following strengths:

- a) WBSSLMS is packed with functions that are practical and easily understood. The functions are kept as simple as possible in order to minimize user's action and at the same time minimizing errors.
- b) The system was developed on the Windows platform, the most popular and widely used operating system. Incompatibility issues are least likely to arise, as it is easily deployed into any machine running on the Windows platform.
- c) The user interface is very simple and easy to use. The learning curve is foreseen to be short and users should be able to use the system with ease within minutes.
- d) One of the plus points of WBSSLMS is its ability to download bibliographic records and share information among the consortium members. This will greatly reduce the time and energy spent on entering and searching of information.
- e) The Web OPAC provides several search criteria suitable for both novice and expert users to search the library's catalogue.
- f) The system provides features where the teacher librarians do not need to know about the system structure, where the database resides, its database management system or anything related to the system built. They will only need to know how to use the system and this is facilitated by the Online Help.
- g) Users can access this system from home and anywhere in the world, as long as they are connected to the Internet.
- h) This system serves as a management information system as well. It has the capability of generating reports, statistics and graphs upon request.
- i) The system is secured enough since user ID and password are required to access the administrator and teacher librarian modules.

The major limitation of WBSSLMS is that the number of consortium members at present is fixed to only four schools due to database allocation and disk space constraints. However the system can be extended in the future to allow more school libraries to join in the consortium. It may be enhanced to include as many libraries in order to provide a platform for more schools to share their resources. This may allow school libraries to fully utilize the downloading function as their resources are no longer limited to only four schools.

User Acceptance Test

To determine if the system can be accepted for operational use, a dummy database consisting of a total of 50 records were tested by 10 volunteers comprising 7 students and 3 teacher librarians. The user acceptance questionnaire consists of 10 and 28 questions for the students and teacher-librarians respectively. Questionnaire for students requires them to rate the user interface in terms of its user friendliness, language used, color and screen design, and seek their opinions on the renew, reserve and search functions. Questionnaires for administrators (teacher librarians) require them to rate the various modules provided in the systems and give comments in the space provided.

In general, all students found the system easy to use and they indicated they understand the language used for the system (English). None of them gave a negative rating to the systems. They commented that the WBSSLMS interface is appealing and attractive and is suitable for secondary school usage. Six students indicated that the functions renew,

reserve, simple search and advance search are 'absolutely easy to use' and rated the functions user ID retrieval and guest book as 'excellent'.

Responses from the teacher librarians also show that the system has met its overall requirements and serves well as a consortium of library system. All 3 respondents ranked the following functions 'absolutely easy to use' and 'excellent' – acquisition searching-downloading, cataloguing searching-downloading, cataloguing-updating records, cataloguing new records, circulation (loan and return), maintenance (check reservation, paying fines, loan and return), user maintenance, item maintenance, report & statistics management. However two teacher librarians indicated preference for Bahasa Melayu to English as the language of the system as the former is the medium of instruction in Malaysian schools. They also commented that the display of records should be in bibliographic format, rather than labeled format.

Conclusion

School libraries, however small, are now complex organizations that create and use vast quantities of information. They provide a setting where students can develop the skills they will need as adults in an information rich world – the skills of locating, retrieving, analyzing, evaluating, using and communicating information and ideas (Singh, 1996). Consequently, there is a need to ensure that this information is organized and managed in such a way that school objectives are achieved. Information access limited to school hours and only to one's own school is no longer appropriate in this information age. In relation to this, today's school has, or should have, an information management system that are of particular value to the school community. As web-based library services is a trend; libraries nowadays are taking full advantages of the Internet and web facilities to provide a more efficient service.

WBSSLMS, a fully operational web-based library management system, has successfully achieved and fulfilled the objectives and requirements specifications as a consortium of online library system. Although it has not being used as yet in real situation, it is foreseen that WBSSLMS has met the requirements to meet the needs of a sophisticated library automated system combining access to the school library catalogue and the Internet for Malaysian students and teachers especially in the light of the Smart School concept.

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Developing Information Literacy in the Malaysian Smart Schools: Resource-Based Learning as a Tool to Prepare Today's Students for Tomorrow's Society

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Abstract

Today's students are surrounded by more information coming from more sources than ever before. In order to deal with the vast amount of information they will encounter in school, life, and work, they must develop skills not required of previous generations. Since schools cannot teach all that students need to know, a better way is to teach them to manage the information resources. Although schools should still identify the basic information that students need to know, schools must also teach "information literacy", that is, the ability to find, interpret, use, and communicate information from a variety of sources. Resource-based learning is a tool to help students handle information. It is based on the belief that students learn best by interacting directly with learning resources instead of just listening to classroom lectures. The learning is in line with the Malaysian Smart School Concept in that it is more self-directed, self-paced, and self-accessed, and hopefully, more meaningful. Since the skills of information literacy cannot be taught in a content vacuum, resource-based learning integrates the classroom and the school resource centre or the school library. Students go through a problem-solving process that requires them to define the need for information, determine a search strategy, locate the needed resources, assess and understand the information they find, interpret the information, communicate the information, and finally, evaluate their conclusions in view of the original problem.

Introduction

This paper discusses a much required convergence of two concepts, one that has been around for a while ("information literacy") and one that is relatively new (the "Malaysian Smart School"). The concept of information literacy is not new; in fact, there is a relatively large body of literature, particularly of American, Canadian, Australian and South African origin. Historically, literacy was interpreted as a basic ability to read, write, and comprehend. Kuhlthau (1995) affirmed that to be literate was not only to recognise when information was required, but involved the ability to construct one's own knowledge through a process that gave meaning and self-interest to the notion of learning throughout a lifetime. However, more often than not, classroom teachers see information literacy as an add-on and not a genuine part of the business of education (Langford, 1998).

The Malaysian Smart School concept was formally introduced to the world in 1997 (Ministry of Education, 1997). The Malaysian Smart School was set up to be the catalyst for a massive transformation in the Malaysian educational system, in line with and in support of the nation's drive to fulfil Vision 2020. This Vision calls for sustained, productivity-driven growth, which will be achievable only with a technologically literate, critically thinking work force prepared to participate fully in the global economy of the twenty-first century. Technology-supported Smart Schools will improve how the educational system achieves the National Philosophy of Education, while fostering the development of a work force prepared to meet the challenges of the next century.

Malaysia is planning to roll out the Malaysian Smart School concept to all the schools in the country in the year 2003. A three-year pilot project, which started in July 1999, involving less than one percent of the schools in the country, is due to end in December 2002. It is critical that school librarians, teacher librarians, or media coordinators, as important stakeholders in the Malaysian School System, help promote the Smart School as a vehicle for the realisation of the goals of information literacy in schools.

Teacher librarians know about information literacy from their perspective, but there seems to be a serious gap between what they know and what is being practised by classroom teachers in the implementation of pedagogy that includes information literacy as common practice. Information literacy is an important concept in the Smart School Conceptual Blueprint, but the term is not formally presented anywhere in the document.

At present, information literacy seems to be the responsibility of librarians and teacher librarians or media coordinators (as named in the Conceptual Blueprint). They write papers, organise conferences, develop plans, explore and support theories, but all this intellectual activity is far removed from everyday classroom practices, and does not translate into effective and considered change in the classroom. The understandings and skills that form information literacy have yet to become embedded into the classroom practices of teachers, the outcomes of education in the Information and Communications Age, and the Malaysian educational system. Too often information is understood as something that is teacher librarian-oriented and not part of the general curriculum. The concept of information literacy has yet to become part of the natural discourse of the design of curriculum units or pedagogical issues.

It is time that teacher librarians in Malaysia examine the golden opportunity presented by the imminent roll out of the Malaysian Smart School to implement goals and objectives of information literacy in the school system. Obviously, there is a need to learn from successful existing and on-going projects around the world, and merge this learning with unique local requirements to create something that can be adapted and adopted by the local system. This conference will help fulfil part of this need, but teacher librarians in the country must see that the Malaysian Smart School concept is not a fashionable luxury. They must see that it is the only sure way for them to move forward and make an impact in the educational system.

Guiding Principles of the Malaysian Smart School

Malaysia's National Philosophy of Education calls for "developing the potential of individuals in a holistic and integrated manner, so as to produce individuals who are intellectually, spiritually, emotionally, and physically balanced and harmonious". This philosophy underpins every element of the Malaysian Smart School conceptual model.

The Malaysian Smart School is a systemic reinvention of the Malaysian educational system, and entails changing the culture and practices of Malaysia's primary and secondary schools. The reinvention involves moving away from memory-based learning designed for the average student to an education that stimulates thinking, creativity, and caring in all students, caters to individual abilities and learning styles, and is based on more equitable access. Students will be required to exercise greater responsibility for their own education, while more active participation by parents and the wider community will be sought.

The most distinctive feature of the Smart School will be a teaching and learning environment derived from the alignment of the curriculum, pedagogy, assessment, and teaching-learning materials in a mutually reinforcing and coherent manner. Students will be encouraged to progress at their own pace, and according to their varying capabilities, interests and needs. The students will also be given greater responsibility for managing and directing their own learning. The focus will be on students' searching, generating, and using knowledge with an emphasis on problem-solving and creativity. In the Smart School, it is hoped that students will develop the critical skills and acquire the knowledge they need for effective lifelong learning and full functioning as citizens in a changing society.

Clearly, the Conceptual Blueprint discusses the use of "information literacy" as contributing towards personal empowerment and the students' freedom to learn. When they know how to find and apply information, they can teach themselves what they need to learn, and essentially they would have learned how to learn. Resource-based learning is seen as a tool to achieve both subject and information literacy objectives through exposure to and practice with diverse resources.

The Malaysian Smart School Conceptual Blueprint, which is descriptive in nature rather than prescriptive, gives guiding principles as to the pedagogy and materials that will help children achieve self-paced, self-directed, and self-accessed learning. However, methods and tools used to achieve the aims of the Smart School are part of the evolutionary refinement allowed for in the Conceptual Blueprint.

Information Literacy in the Smart School

The Smart School Conceptual Blueprint recognises that one of the greatest challenge for society in this century is keeping pace with the knowledge and technological expertise necessary for finding, applying, and evaluating information. We live in an information-rich world where the amount of information and knowledge in the world is presently doubling every two years (Thornburg, 1997), and was predicted to have doubled in the year 2000 (Breivik and Senn, 1994).

Most people think of information literacy as a set of skills requiring technical ability, in other words, some form of "doing". True information literacy, however, involves both thinking and doing.

The world view of literacy has since been broadened to accept that literacy was evolving; that there was a continuum of skills associated with literacy; and that literacy itself was taking on various forms, in fact transforming, from a functional literacy through a set of literacies, tied to advances in technological society.

Owen, 1996 (as quoted in Langford, 1998) acknowledged that information literacy is demonstrated through our capacity to confidently challenge ideas because of our ability to access and use information effectively, but he goes on to expand information literacy to include:

- That, beyond improving study and research skills, it serves to empower; to find out and act on information;
- It as a means of personal empowerment for all, not just students;
- Besides independent and self-directed learners, interdependent learners; and to
- Enrichment and enlivenment ... of lifelong learning.

The Smart School concept is premised on the belief that students should be educated to be “self-paced, self-accessed, and self-directed learners”, with the teacher as “a guide by the side, not the sage on the stage.” However, the very people responsible for empowering students to become lifelong learners, may not fully understand the information process, let alone information literacy, well enough to be truly effective learners themselves. Classroom teachers need to develop a belief, along with ensuing behaviours, in the teaching of enabling skills to permit students to construct their own knowledge and learn through independent and interdependent manipulation of information.

For a start, most teachers are not clear about what is meant by the term “information literacy” and how it relates to classroom practice. There is a need for teacher librarians and classroom teachers to work together in the same understandings and perceptions, and toward the same outcomes in an understood framework that is free from jargon, transferable from subject to subject, and a part of the natural discourse of educators. This requires a move from conceptual knowledge to standardised knowledge. Information literacy must become a part of all teaching practice and an embedded practice in the Smart School.

Resource-based Learning as a Tool

Advocates of information literacy promote resource-based learning as the methodological tool to realise it. Resource-based learning is based on the belief that students learn best by interacting directly with learning resources rather than only listening to classroom lectures. The learning is more self-directed and therefore more meaningful, and students retain the knowledge better because they learned it in a more engaging process.

Breivik (1994) calls resource-based learning “a down-to-earth, practical way of accomplishing the goals we’ve had in education for so long.” These include making learning more authentic, encouraging interdisciplinary studies, developing more meaningful assessments, as well as accommodating learning styles and making inclusion more effective. Students are active learners (with teachers as guides by the side), and they are charged with finding information and turning it into knowledge – making their own meanings while integrating information from a variety of sources and media.

Since the skills of information literacy cannot be taught in a content vacuum, resource-based learning must integrate the classroom and the school resource centre.

For resource-based learning to work, teachers have to foster a process of discovery through which students learn how to use information sources effectively while pursuing questions they find meaningful. The student has to have a question to ask, a problem to solve, or a project to complete first before he goes about identifying resources, whether print, online, or human. Although the teacher’s responsibility is to cover content (in other words, “to complete the syllabus”), he can surround the content with resource-based learning activities that help to make the learning experience more interactive, collaborative, and much more vivid for the student.

Resource-based learning enables teachers to involve students in complex tasks that go beyond the limits of the classroom, beyond textbooks, and is more conducive to collaborative learning. By going beyond traditional classroom resources into the local community, the internet community, and the mass media, students develop more awareness of the source and nature of the many kinds of information.

Exciting New Times

With resource-based learning, teachers must either work very closely with teacher librarians who are library media specialists, or become library media specialists themselves. Instead of merely using provided materials, teachers must adapt the curriculum, work with students to set up the conditions for learning, and coach students through it. The two scenarios below illustrate how collaboration between classroom teachers and teacher librarians can help students become more independent learners.

Sample Lesson Scenario I

Mr. Hassan, a secondary school English Language teacher, collaborates with Mr. Tan, one of the school's teacher librarians, on a resource-based approach to learning about violence in the media. Mr. Hassan asks his students to conduct research in preparation for a multimedia presentation. The information skills objectives include:

- Appreciation: Watch a television programme, recording the number of violent acts, and discuss ideas about the impact of violence
- Presearch: Compare the number of violent acts across genres, use online search tools to find information on violence in the media, create a list of sub-topics, and brainstorm keywords for them
- Search: Interview a person or contact a group concerned with media violence, search resources for supporting data, and define "violent act"
- Interpretation: Develop a violence rating scale, determine the credibility of data and sources gathered, and write a review of one programme with an emphasis on violence
- Communication: Create a cartoon or comic strip on the subject, design an anti-violence programme for the school, and determine an effective method for reporting findings

Sample Lesson Scenario II (adapted from O'Sullivan and Scott, 1999)

Mrs. Sarah collaborates with Miss Normah to design a social studies lesson on Internet information literacy focussing on student evaluation of websites.

On the first day of the lesson, students learn to translate and dissect Universal Resource Locators (URLs). By learning such domain suffixes as *.com*, *.org*, *.gov*, *.edu*, and others, students gain a greater awareness of where information originates and how the origin relates to the reliability of the information.

To demonstrate the potential for misinformation, which is easily encountered when conducting research on the internet, Mrs. Sarah and Miss Normah give a presentation which includes examples of unreliable websites. The teachers help their students

understand that even *.gov* sites and *.edu* should not always be considered completely objective.

The teachers also introduce a strategy that librarians often use when evaluating print resources. The strategy includes five criteria: accuracy, authority, objectivity, currency, and coverage (Tate and Alexander, 1998), namely:

- Accuracy (Is the information reliable? Are the links accurate? Sources cited? Information believable?)
- Authority (Who is the author of the site? What are his/her qualifications? Is the site sponsored by an organisation? Is the organisation reputable or legitimate?)
- Objectivity (Does the information reveal a bias? What is the point of view of the author? Is the information trying to sway you? Do the links also reflect a bias?)
- Currency (When was the site last updated? Is the information kept up to date? Is the publication date indicated? Are the links up to date?)
- Coverage (How is the information presented? Heavy use of graphics, text, statistics? Topic coverage cursory or in-depth?)

By comparing three different websites, all dealing with the same topic, the students learn to apply these criteria to internet information.

On the second and third days of the lesson, students begin researching world history or global studies topics, including globalisation, global warming, human rights, and terrorism. While researching their topics using one of the popular search engines, students use the five criteria to evaluate the first three websites that appear.

When the lesson is complete, the teachers ask for student reactions. Various opinions are expressed, but all the students agree that the internet is a very useful research tool, but should never be used all by itself.

Mrs. Sarah and Miss Normah see that their students have learned to make responsible judgements about website information.

Some Challenges – The Usual Suspects

Adopting a resource-based learning model requires commitment at all levels. The biggest challenge is people. Change management monitoring activities carried out by the Smart School Pilot Project Change Management Team (Ministry of Education, 2002) have shown clearly that managing attitudes and learning to collaborate are more difficult than the more expensive task of equipping schools with technology.

Teachers and students working together as co-learners in dialogue with each other, as explorers in uncharted seas of learning is an area that has yet to be fully exploited.

Another aspect of change that seems difficult to accept is the idea of being comfortable with the ambiguity and uncertainty inherent in the new school technology. Teachers have to work at learning not only new technologies introduced in the Smart School project, but also how to evaluate the information that the new technology makes available. Teachers are not comfortable to find themselves learning alongside their students in the classrooms. Many would still prefer to be “sages on the stage.”

Although training is the key to getting resource-based learning off the ground, teachers also need planning time built into the schedule. With the increased role of

technology and greater staff collaboration as well as teacher-student collaboration, planning becomes even more critical and important.

For students to become information-literate, they will need access to information resources when a question comes up – not on a fixed schedule. Fixed regular visits to the school resource centre should become a thing of the past, and school administrators must now plan for students and teachers to access the school resource centre when the need arises.

Next Steps

The challenges and rewards of the teaching profession have never been greater. The range and type of information that students need to know far exceeds that of previous decades, and the academic expectations for all students are increasing in virtually every part of the country.

Considerable attention is being devoted by the Ministry of Education to ensure that the mindset of teachers is changed so that they understand that Smart Schools offer the best environment for self-paced, self-accessed, and self-directed learning. Teachers must help students become active learners by allowing them to use a wide range of materials to investigate subject material prescribed by the curriculum.

Classroom teachers and teacher librarians must become motivators and facilitators in the learning process and provide the initial subject impetus that drives students to seek information and become creative problem-solvers.

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APPENDIX

The Malaysian Smart School, Information Literacy, and Resource-based Learning: A Mapping

Guiding Principles of the Malaysian Smart School	Definition and Objectives of Information Literacy	Definition and Features of Resource-based Learning
<p><u>For students:</u></p> <p>Knowledge acquisition skills: Information seeking, organising, analysis, synthesis (p. 33)</p> <ul style="list-style-type: none"> • collect, analyse, process and present information • support meaningful learning in a variety of contexts • prepare for working life (p.37) <p>... general skills such as transfer of information across settings, ... (p. 40)</p> <p>“... organise information ...” (p. 84)</p> <p>Smart Schools will prepare students to make a successful transition to the modern and more global environment. The schools will nurture skills of creative problem-solving in the face of novel situations, and students will learn to exercise courage in making decisions and assuming responsibility for them. Students will learn to process and manipulate information. They will be trained to think critically and to reflect on what they have learned, as well as</p>	<p><u>Definition:</u></p> <p>The ability to use a variety of sources, including computers, to locate desired information.</p> <p>The ability to find, use, apply and communicate information with critical discrimination, and transform it into knowledge.</p> <p><u>Knowledge Objectives</u></p> <p>The students will understand:</p> <ul style="list-style-type: none"> • the range of resources in various formats for information-finding purposes • the selection of tools such as indices available to access information • the organisation of information as it is represented in various access tools such as catalogues as well as its arrangement within specific disciplines • the means by which information can be disseminated 	<p><u>Definition:</u></p> <p>Learning that involves active participation with multiple resources (books, journals, newspapers, multimedia, Web, community, people) where students are motivated to learn about a topic by trying to find information on it in as many ways and places as possible.</p> <p><u>Features:</u></p> <ul style="list-style-type: none"> • Students actively participate in their learning • Learning experiences are planned based on instructional objectives • Learning strategies and skills are identified and taught within the context of relevant and meaningful units of study • A wide variety of resources is used • Locations for learning vary • Teachers employ many different instructional techniques

Guiding Principles of the Malaysian Smart School	Definition and Objectives of Information Literacy	Definition and Features of Resource-based Learning
<p>to transfer and apply knowledge from one discipline to another and to daily life. Students will be able to go on an information journey around the world to search for and collect data. Besides having their own access to on-site resources, they will also have access to national as well as global resource centres, through tools such as the Internet. In addition to gaining access to databases, networking will enable interactions with other students, teachers and people all over the world. The students' world will be widened through these scholastic and social contacts. (p. 131 – 132)</p> <p>“... students will need to be taught strategies to competently and selectively navigate for information.” (p. 131)</p> <p><u>Curriculum:</u> (p.11)</p> <ul style="list-style-type: none"> • Shall be meaningful, socially responsible, multicultural, reflective, holistic, global, open-ended, goal-based, and technological • Shall promote holistic learning, allowing children to progress at their own pace, and catering for students' varying capabilities, interests and needs • Will seek to ensure that children are educated with critical and creative thinking skills, inculcated with appropriate values, and encouraged to improve their language 	<ul style="list-style-type: none"> • the publication sequence of information as it is transformed from idea to the published word in book format <p><u>Skills Objectives</u> The students will be able to:</p> <ul style="list-style-type: none"> • recognise an information need • design a research strategy that identifies the steps necessary to secure needed information • evaluate information and determine its relevance in relation to a given information need • use computerised information tools to locate information • summarise and analyse essential information from pertinent resources <p><u>Attitudinal Objectives</u> The students will appreciate that:</p> <ul style="list-style-type: none"> • an information search takes time and requires persistence • self-confidence in finding information increases with practice • the information search process is learned gradually over an extended period of time just as the content of any subject area is mastered 	<ul style="list-style-type: none"> • Teachers act as facilitators of learning, continuously guiding, monitoring and evaluating student progress • Teachers work together to implement resource-based learning across grade levels and subject areas <p>SUCCEED Resource-based Learning Model for Independent Learning</p> <ul style="list-style-type: none"> • Select and focus topic and information needs • Uncover potential sources of information. Learn how to access them • Collect, examine, and select suitable resources • Compile relevant information from selected sources • Evaluate, interpret, analyse, and synthesise the information • Establish and prepare an appropriate format and present the information • Determine the effectiveness of the whole process <p>EFFECTIVE Model for Planning Resource-based Learning</p> <ul style="list-style-type: none"> • Establish general goals and objectives from curriculum guides

Guiding Principles of the Malaysian Smart School	Definition and Objectives of Information Literacy	Definition and Features of Resource-based Learning
<p>proficiency</p> <ul style="list-style-type: none"> • Will be designed to offer multidisciplinary, thematic, and continuous learning • Foster the knowledge, skills, and attitudes appropriate for success in the Information Age <p><u>Pedagogy:</u> (p. 11)</p> <ul style="list-style-type: none"> • Will seek to make learning more interesting, motivating, stimulating, and meaningful • Build basic skills to prepare children for greater challenges over time • Cater for a range of needs and capabilities among the students • Shall use an appropriate mix of learning strategies to ensure mastery of basic competencies and promote holistic development • Accommodate individual learning styles, so as to boost performance • Foster a classroom atmosphere that is compatible with different teaching-learning strategies <p><u>Assessment:</u> (p. 11)</p> <ul style="list-style-type: none"> • Shall be element-based and criterion-referenced to provide a more holistic and accurate picture of a student's readiness, progress, achievement and aptitudes 	<ul style="list-style-type: none"> • careful scrutiny of information-finding tools and resulting resources is essential to a successful search • the information search process is an evolutionary process that transforms over the course of investigation as new information is acquired 	<ul style="list-style-type: none"> • Focus on learners to determine their prior knowledge and skills • Formulate specific objectives for the resource-based learning experience • Establish instructional strategies, techniques, and learning activities • Choose learning resources and locations • Timetable access to resources, facilities, and personnel • Implement the plan • Verify that learning is occurring • Evaluate student achievement and the instructional process <p>Examples of Learning Resources</p> <ul style="list-style-type: none"> • Atlases • Audio recordings • Books • Cartoons • CD-ROM Encyclopedias • Computer software • Dictionaries • Diagrams • Documents • Displays • Drawings

Guiding Principles of the Malaysian Smart School	Definition and Objectives of Information Literacy	Definition and Features of Resource-based Learning
<ul style="list-style-type: none"> • Will be flexible and learner-friendly • Will use multiple approaches and instruments <p><u>Materials:</u> (p. 12, 62 – 63)</p> <ul style="list-style-type: none"> • Will accommodate students' differing needs and abilities • Will allow students to take greater responsibility for managing and directing their own learning • Will include conventional materials <ul style="list-style-type: none"> – Print-based (books, encyclopedias, magazines, newspapers, documents, flat pictures, drawings/paintings, maps, graphs/charts/diagrams, posters, cartoons/comics) – 3-dimensional objects (globes, puppets, models, mock-ups, collections, specimens) – Audio/visual (slide tapes, filmstrips, radio programmes, television programmes, motion picture films, microfilms/microfiches, audio cards, audio tapes) • Will include computer-based materials <ul style="list-style-type: none"> – Modules for computer assisted instruction (interactive storybooks, simulation games, virtual reality system software, individual self-paced learning modules, problem solving compute games, artificial intelligence modules) 		<ul style="list-style-type: none"> • Dolls • Films • Filmstrips • Games • Magazines, both print and online • Manipulatives • Maps • Microfilm • Models • Multi-Media Kits • Musical instruments • Newspapers • Paintings/Reproductions • People • Pets/Animals • Photographs/Slides • Pictures • Posters • Puppets • Realia • Television programmes • Textbooks • Video recordings

Guiding Principles of the Malaysian Smart School	Definition and Objectives of Information Literacy	Definition and Features of Resource-based Learning
<ul style="list-style-type: none"> - Tools (desktop publishing software, authoring language software, presentation software, draw and paint programmes, animation software, musical instrument digital interface, music composition software, clip art) - Network based (item bank, video on demand, interactive television, online library, bulletin board, search engines, distance learning, videoconferencing, email) - Application software (database software, word processing software, spreadsheet software, computer assisted design software) <p><u>For teachers:</u> The media/technology coordinator ... should be an experienced teacher who also understands how best to use technology for gathering information, instruction, managing, and communicating. (p. 14)</p>		

Developing 21st Century School Media Resource Libraries for Singapore: An Assessment and Proposal from a Library and Information Science Education Taskforce

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Abstract

In light of global calls for emphasizing innovative thinking and creative problem solving in elementary and secondary schools and a more collaborative role for school media resource libraries to support the new focus, a taskforce of four faculty members from the Division of Information Studies of Nanyang Technological University undertook to assess the status of a selected group of thirteen media resource libraries in Singapore. Data obtained from questionnaires and focus groups indicate that for Singapore's School Media Resource Libraries to play a significant role in supporting the new educational focus some important changes are needed. Recommendations from the taskforce include a change in status of the School Media Resource Library and its supervisor, additional training and education for these supervisors, improved access and connectivity for inter-school cooperation, and more collaborative collection management policies.

Introduction

At the dawn of the 21st century, many countries have recognized the need for a new vision for their educational systems that will prepare their students and future citizens for life in an increasingly information and technology-rich society. Competing in a rapidly changing information-based economy often requires skills different from those more traditionally accepted as part of the educational process. Creative problem solving, innovative thinking, information processing and assessment are only some of the skills deemed as necessary for active engaged citizens of the 21st century global economy. The role of the School Media Resource Library is often perceived as critical for the implementation of the new vision.

In the US, *Information Power: Building Partnerships for Learning*, (AASL, 1998) speaks clearly of the need for students to be skillful producers and consumers of information, participate in a global learning community, and become active creative users of information so they can be independent thinkers and contribute to a future society. In Australia, *Learning for the Future: Developing Information Services in Schools*, (ASLA, 2001) argues that the basis of how a society manages its knowledge and hence its ability to participate effectively in a knowledge society rests largely within the school community. It states that the need to use information effectively has sometimes become more important than the actual knowledge itself as the rapid pace of change means that answers valid today may not be so tomorrow. The impact of ICT (information and communication technology) means a new integrated perspective on the learning process. In Canada, the Association for Teacher-Librarians in

Canada, ATLC (www.atlc.ca) in its Students' Bill of Rights states that there is a need for Canadian students to be prepared for a future where change will be one of the constants and their ability to be life-long learners and independent decision-makers will be critical to success in an information rich future. In New Zealand, Information & Communication Technologies (ICT) Strategy for Schools 2001-2004 Draft (www.minedu.govt.nz) states that students must develop knowledge, skills, and attitudes to participate fully in society to achieve a global economy and have a sense of identity and culture, and that information skills are essential for achieving this goal. In Singapore, *Project Work*, Ministry of Education, 1999 (<http://www1.moe.edu.sg/projectwork/>) states that students will be entering a dynamic and changing world so they need to be able to transfer ideas from one context to another and make creative connections between fields, develop self-directed inquiry as well as communicate and contribute to group objectives.

In many of these countries, the role of the school library whether it is called a School Library Media Center, Media Resource Library, included in the ICT group or given a different name, and those of the professionals in charge are regarded as central to the attainment of the new educational goals. Professional or advanced training is essential for those who will be leading the School Media Resource Libraries in these new roles. In the US the professionally educated School Library Media Specialist is the keystone of self-centered learning. In Canada the role of the highly trained Teacher-Librarian and the School Library is key to achieving their educational goals, In Australia teachers and information services staff collaborate to focus on the learning process not just the product. In New Zealand, the Trained Teacher Librarians often head the development of information skills in the school curriculum. Indeed the policy statement of IASL itself states the school library is central to the fulfillment of the goals and objectives of the school and that a planned program of teaching information skills in partnership with classroom teachers and other educators is essential. (www.iasl-slo.org/policysl.html)

In Singapore, although *Project Work* speaks broadly of the importance of creative learning and thinking skills as well as gathering and processing information, there is little or no reference to the role of the School Media Resource Libraries or that of the School Media Resource Librarian. Likewise in *Library 2000* (1994) a blueprint for strategic planning for Singapore libraries, school libraries are included in the planning, but specific implementation has been slow. However the updated *School Media Resource Library Handbook* from the Ministry of Education (2001), states that the School Media Resource Library is expected to be the center of the school learning and teaching activities and to provide support for classroom learning as well as for developing new student approaches to learning.

The Division of Information Studies at Nanyang Technological University was formed as a result of the Library 2000 plan to educate and train information professionals to work in a range of information intensive environments including public, academic, school and special libraries. The Division operates at the graduate level offering a Master of Science in Information Studies, MSc(IS), and is the only such graduate program in Singapore. Within the program, students may select any one of five special concentrations: Information Systems, Library and Information Science, Information Management, Archival Informatics, or School Media Resource Management.

Given the purpose of the Division's creation and the clear statement from the Ministry of Education to reposition the School Media Resource Library as a central player in the Project Work initiative, it seemed appropriate for the Division of Information Studies at NTU

to take an active role in facilitating a more central role in the school curriculum for the School Media Resource Library by emphasizing among other things, the need for well-trained professionals to be in charge of these centers. With several relevant courses already part of the Master's Degree in Information Studies, developing a concentration area specifically targeted to those students wanting further training in this field appeared to be a logical response. By selecting the concentration in School Media Resource Management, students will receive the education and training required for a professional career in child and youth-related library environments. However, before developing this concentration further, it seemed advisable to assess the current situation in the Singapore schools in order to determine both current and future needs.

The Assessment Process

Because timing was important, contacts were made to former students currently in supervisory roles in the Singapore schools. A positive response was received from the Superintendent of the North Zone Cluster Schools and a small taskforce of faculty members from the Division of Information Studies at NTU was invited to make a presentation to the principals and vice-principals of this cluster. As part of the presentation, data from the USA and UK studies were cited to indicate that an effective and involved School Media Resource Library (SMRL) program can support resource-based learning and effective problem solving skills, and can also contribute to a rise in standardized test scores for the children of these schools. Data from studies in the UK, Alaska, Colorado, Massachusetts and Texas demonstrate that among other results, schools with full-time qualified school media specialists involved in an instructional role have a larger percentage of their students with high test scores. (Hughes,1998; Lance, 1994; Hopkins & Zweizig,1999; Baughman, 2001;Glick, 2001)

The enthusiastic response to the Division's presentation and follow-up focus group discussions led to plans for more formal meetings between the task force and representative groups from the North Zone Cluster Seven Schools. The original plan was to carry these presentations to a larger selection of Singapore schools, but after the meeting with this cluster group, it was decided to use the North Zone Cluster Seven as a pilot project group and determine how best to meet needs of these schools before attempting those of a larger audience. Two courses of action were decided upon: first, visits to several schools for focus group sessions with representatives from surrounding schools; second, questionnaires to be sent to each school in the cluster to help us appraise basic SMRL status.

School Visits

From the first school visit and focus group, the task force learned a great deal about the staffing patterns and qualifications of SMRL department heads and/or coordinators. In light of these fruitful discussions, version one of the questionnaire was revised to include some more basic questions about school library collections and staffing qualifications. In subsequent school visits, questionnaire results were presented and focus group discussions were continued. The topics considered in these groups were the role of the SMRL in the school curriculum, the qualifications of SMRL staff, and the training and educational needs of SMRL staff and coordinators.

The focus group discussions provided the following picture of SMRL governance and operations. In Singapore, there are 376 primary schools, secondary schools and junior

colleges. Junior Colleges have a full time professional librarian but primary and secondary schools do not. In these schools library functions are run by Heads Of Division (Information Technology cum Media Resource Library) or Library Coordinators. These are teachers with little or no library background or training. They are tasked to manage the SMRL as a co-curricular activity over and above their normal teaching workload. In a typical SMRL the Head Of Division (IT cum MRL) is in overall charge of both the IT and SMRL aspects of the school. The management of the SMRL is the responsibility of the Library Coordinator, a position that may or may not even exist in some schools. He or she may be assisted by a team of teacher librarians, pupil librarians, and/or parent volunteers. Some schools may employ a part-time staff member who takes on the role of a paraprofessional to assist in the daily operation of the School Media Resource Library.

From this overview, the taskforce made some important assessments. First, the SMRL operates as a co-curricular activity (CCA) that indicates a status somewhat less than that of a full-fledged curriculum partner. Second, because of this status, the SMRL supervisor is a regular teacher assigned to the SMRL as his/her special CCA duty. As a result, SMRL supervision is an additional responsibility beyond regular teaching duties and thus the assignment may change frequently – sometimes every year. Third, although there may be some continuity though interaction with previous SMRL supervisors and/or those in other schools, often there is almost none.

The Questionnaire

The questionnaire given to each of the thirteen North Zone Cluster Seven Schools requested information about School Media Resource Library basics such as school enrollment and number of teaching staff as well as the qualifications and experience of those in charge of the SMRL, the collection and selection policies, library use by students and teachers, library automation, and the education and training needs of SMRL supervisors. We were fortunate to be working with the superintendent of this cluster, so we received responses from all thirteen schools, (100% rate of return). The questionnaires revealed the following information.

SMRL Basic Information

School size and Budget:

Most schools have populations between 1500 and 2500 students; more than 61% were established within the last five years; in 2001, most received a larger budget than in the previous year.

Collections:

Over half of the schools have book collections from 5,000 to 15,000 volumes and 100 to 500 CD-ROM titles, but have few magazine subscriptions.

Selection and Acquisition:

Often the Head of Department, coordinator, or library committee selects material; usually publishers' catalogs and vendor lists are used to identify materials; electronic or web-based tools are not used.

MRL Use:

Very few students use the SMRL for class projects or assignments; teachers often do not alert the SMRL to new course topics; in ten of thirteen schools, students had one mandatory SMRL visit each week (3 schools had an SMRL in development stage only)

Automation:

In most schools, the collection development and/or circulation activities are at least partially automated; but most schools have no OPAC available for searching the collection.

Education and Training Needs

Education and Training:

Sixteen or 61.5% of the department heads or coordinators are without a bachelor's degree or equivalent.

63% have never attended any short courses on SMRL management.

Perceived Educational Needs:

For short-term needs, all respondents indicated a need for short courses on major library operations.

For the long run, all respondents requested a full master's degree program; although 75% preferred a program offered part-time and targeted to the needs and schedule of SMRL staff.

Evaluation and Recommendations

With the information obtained from the focus groups and questionnaires examined in the light of international goals for school library media center curricular involvement and those of the Singapore Project Work initiative, the task force made the following recommendations for the strengthening of SMRLs in Singapore. To assist Singapore in transforming its school libraries into world-class media resource centers, several priorities need to be recognized.

Long-run Goals

First, schools need to reposition their SMRLs to play a more central role in the school's curriculum. If we can believe the data emerging from US and UK studies, an active media center involved in partnering with teachers to promote and support resource-based learning brings only good results to teachers and students. To facilitate this, the Ministry of Education in Singapore (MOE) should seriously consider creating positions for professionally educated School Media Resource Librarians completely separate from teacher positions. This action would not only provide the leadership necessary to realize the goal of school wide resource-based learning but would relieve classroom teachers of CCA library supervision, for which they have little training, and give them time and an opportunity to work collaboratively with a trained School Media Resource Librarian for the benefit of their students.

Second, the leaders and supervisor of these SMRLs should be well trained and educated in all areas of school media resource library management including curricular support activities to promote the SMRL as the center of school learning and teaching activities. (*School Media Resource Library Handbook* from the Ministry of Education, 2001) Finally, the newly constituted SMRLs should have the full support of both principals and government administrators. This support should be in terms of budget, staffing, facilities and

IT development as well as personal encouragement and recognition of the importance of a quality SMRL program.

Intermediate Actions

To achieve the long-range goals listed above, several courses of action are suggested as intermediate actions. First, the position of the SMRL supervisor should be recognized as a permanent full-time assignment and carry the status of a fully qualified professional partner in curricular activities. Developing and managing a quality SMRL facility and program is a full-time responsibility that requires dedication and creativity. Ideally each school should employ a professionally trained teacher-librarian to manage the facilities, collection, and programs for the school as well as one or more library aides to manage daily library activities.

Second, with a full-time well-qualified professional in charge of the SMRL, cooperative, collaborative educational activities with classroom teachers and HOD's should be possible. These would include cooperative collection building for the SMRL, partnership in curricular assignments, and development of resource-based learning modules through which students would build research and problem-solving skills.

Third, to maintain a well-functioning and effective SMRL program requires that access to relevant curricular support and recreational materials are easily available. Fully functioning Online Public Access Catalogs (OPACs) should be maintained in each school. These should have student-friendly interfaces to encourage the development of good information finding skills as well as providing access to materials in the local collection. In the long run, the OPAC's from each school should be available on the Internet to facilitate access by local cluster users as well as providing resource sharing among all Singapore schools. A further impetus for sharing of resources suggested by the taskforce is the development of a Schools Portal to serve as a central information access site where all schools could contribute and share local ideas and information as well as provide useful external links to Internet and other remote resources.

Short-run Solutions

It is recognized that for both recommended Long-run Goals and Intermediate Actions dramatic shifts in policy and action may be required by Singapore's schools. In several cases such as creating a special position for SMRL supervisor, for instance, decisions may be well beyond the powers of the individual School Clusters and in fact may be possible only far into the future. But because the task force believes in the importance of the suggested long-range goals, it strongly recommends that immediate measures be taken wherever possible in order to create momentum toward their eventual attainment. World class SMRL's are not beyond the scope of Singapore's schools, but initiatives must be implemented before too long or much of the developed world will have moved on.

First, since survey findings show that 61% of current SMRL staff in the North Zone Cluster Seven schools do not meet NTU's requirements for entrance into a professional program, an alternative approach is needed to give this group basic skills to help them in the daily operations of an SMRL. A series of five training modules to cover some important basics would include: collection development, information organization, reference and information sources, planning and management of SMRLs, and developing web pages and digital libraries. These are to be run consecutively during school holidays. As interim

measures only, they are not meant to replace the formal professional training needed to head the types of programs suggested in the Long-run Goals statement.

Second, another recommendation for the short term is that two professional positions be created at the Cluster level and that the individuals selected for these be sent for professional training (either full or part-time) at NTU. Having been professionally trained, these two could work with SMRL supervisors, HOD's and teachers to develop and coordinate SMRL programs within the cluster. Gradually, these two positions could be expanded to include other professionally trained supervisors of individual SMRLs.

Third, for efficiency and economy, it is suggested that procurement of books and other materials be centralized at the Cluster level. This not only would eliminate unnecessary duplication, but also offer the benefit of volume discounts. For very expensive items, one copy or series could be kept at Cluster level for borrowing by the individual schools (see the benefits of Internet access to local OPACs mentioned in Intermediate Actions above). Fourth, we recommend that when selecting support materials for classroom activities as well as recreational materials for independent reading, the sources be expanded to include online bookstores and specialized websites for children's literature be consulted as well as publisher's catalogs and vendor lists. This will provide added depth and breadth to a school's collection and should serve to support the recommendations for curricular support mentioned above.

By beginning with short-run solutions, then applying these to suggested intermediate actions which can then be used to achieve long-run goals, the task force feels that the North Zone Cluster Seven schools could function as a successful pilot program and serve as a role model for all Singapore schools.

Conclusion

In the assessment of North Zone Cluster Seven schools by the taskforce from the Division of Information Studies at Nanyang Technological University, we found no lack of dedication, commitment, or concern for student needs on the part of SMRL division heads or supervisors. Likewise both principals and vice-principals voiced a great desire for developing and maintaining quality SMRLs and SMRL programs in their schools. However, it appears that the major impediment to the achievement of these goals is the current status of the SMRL as a center for recreational reading and the position of SMRL supervisor as a CCA assignment. Without recognition of the importance of a professionally trained SMRL department head assigned on a long term basis, it will continue to be extremely difficult for the SMRL to function as a collaborative partner with classroom teachers to support resource-based learning and problem-solving skills initiatives.

Proposals from the Division of Information Studies at NTU to help address the current problems in Singapore SMRLs include: short run training modules to provide basic skills to SMRL staff who do not have the qualifications for admission into a graduate professional program; selection of two qualified SMRL supervisors for admission into the full MSc (Information Studies) graduate program with a concentration in School Media Resource Management to serve as coordinators/advisors to help SMRL supervisors within the Cluster work toward having the SMRL serve a more central and integrated role in the school curriculum; recommendations for upgrading access to OPACs for the individual schools as well as system-wide integration; a Schools Portal to serve as a central information access site;

and a centralized system for collection development and acquisition. The Division firmly believes that Singapore is committed to providing quality education for all students and fully recognizes the importance of creative learning and thinking as well as skills for gathering and processing information. The taskforce hopes that recognition of the central role of the SMRL in supporting and fostering these efforts continues to be part of its vision of world-class schools.

It is hoped that from this account of efforts by the NTU Division of Information Studies taskforce to promote significant changes in the School Media Resource Libraries in Singapore schools, others may be encouraged to take an active role in implementing the new vision of an active, creative school learning environment where the School Media Resource Library is the learning center of the school community.

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Knowledge Building through Multiple Literacy Learning

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Abstract

In the 'knowledge society' increasing emphasis is being placed on independent, resource-based and technology-based inquiry learning. This learning process requires teacher librarians/library media specialists and their teaching teams to have access to an expanding range of curriculum information and teaching/learning methodologies. An outcomes approach to learning in regard to a sequential, developmental and progressive learning of information literacy skills within an information processing framework has been on the agenda and actively pursued by teacher librarians/library media specialists for more than a decade. In addition, teacher librarians/library media specialists have embraced information and communication technologies (ICT) as a means to extend the information literacy skills of their learners. An information skills framework becomes the backbone and 'vehicle' through which learners are able to demonstrate what they know and can do within an outcomes-based curriculum. This inquiry approach is the 'linch-pin' across the curriculum. Combine this with a recognized information skills, and information and communication technology (ICT) continuum, one has the beginnings of a progressive and development outcomes curriculum, which works on increasing levels of sophistication and complexity of tasks. In planning a unit of work the information skills framework provides the backbone to sequence the learning activities according to an inquiry-based approach. The tools and methodologies one uses to activate learning within this framework encourages and fosters the development of information literacy attributes and provides opportunity to engage in ICT skills development. School based planning of information literacy in conjunction with an outcomes approach to the curriculum facilitates an informative reporting process for students, as well as parents, as learners continue the journey through lifelong learning in the 'knowledge society'.

Background – Four Pillars of Education and beyond

Back in the mid 1990's I was thrilled to stumble across the 'four pillars of education' as agreed upon by the International Commission of Education for the Twenty-first Century in their report *Learning: the Treasure Within*. Simply, education throughout life is based upon four pillars:

- "learning to know,
- learning to do,
- learning to live together and

- learning to be.” (UNESCO)

I see these strongly reflected in the outcomes approach to education as experienced in Australian schools.

‘Learning to know’ focuses on the need to incorporate the new and emerging sources of information. The skills of knowledge-workers are challenged and stretched to deliver information in multimedia formats to meet the needs of various modes of learning in a networked world. Learning to learn makes the most of a multi-sensory approach. It focuses on an understanding of what one needs to know, how one gets to know and who does the knowing/learning. The content will be ever changing, the process of learning will be crucial and even complex and each learner’s needs will be different.

‘Learning to do’ facilitates the link between knowledge and skills, learning and competencies, thinking and processes. Learning by doing and doing by learning triggers the problem solving and solution creation skills required by our youth to face the challenges of the changing nature of work and the world. It helps them prepare for change, decide on and contribute to their future.

‘Learning to live together’ provides the challenge for our time in a global world to overcome division and build community, to identify and construct international citizenship.

‘Learning to be’ emerges as the metaphysical pursuit of humankind.

Background - the Australian scene

A new set of Australian national goals for schooling in the 21st Century was released in April 1999 as The Adelaide Declaration (which supersedes The Hobart Declaration.) These goals reflect the necessity for “future Australians to have the necessary knowledge, understanding, skills and values for a productive and rewarding life in an educated, just and open society”. (Adelaide Declaration: 1999)

The national goals incorporate the principles of the four pillars of education to develop a holistic approach in that the role of schooling is to provide the foundation for mental, social, physical and spiritual development.

An outcomes approach to learning focuses on outputs rather than inputs. It is based on a belief that there are certain things all students should learn. These ‘things’ they should know are the core learning outcomes. They are the ‘things’ they need to be familiar with, that are important and essential to know. The discretionary learning outcomes are those that take a learner to a deeper understanding, to an outcome that results from an application of higher order thinking, for example. This belief then directs planning and assessment throughout the curriculum.

Learning in an outcomes curriculum is progressive and developmental. It works on increasing levels of sophistication and complexity of tasks. As learners progress through the stages of the continuum they are seen to be moving towards the desired learning and achieving the ‘things all students should learn’. For the learner it establishes a sense of purpose, a target to be reached, a goal to be attained as the expectation is set to what they will come to know and be able to do. The continuum provides learners with signposts to point the way ahead, provide direction and link learning to assessment. The intention is for learners to

progress from one level to the next level in a seamless, continuous, coherent way through productive opportunities to learn and do.

Assessment provides opportunities for learners to demonstrate their knowledge, skills, abilities and processes. It asks students what they know, what they are able to do and how they are able to do it. Within this outcomes approach there is also acknowledgement that there are

- different ways to learn(e.g. multi-sensory, multi-media)
- different rates of learning(e.g. chronological age and/or year/grade level do not equal learning age) and
- different learning environments(e.g. face-to-face, distance education, real-life, just-in-time)

Information Skills Continuum and beyond

An outcomes approach to learning in regard to the sequential, developmental, progressive learning of information skills within an information process/framework has been on the agenda and actively pursued by teacher librarians in Australia for more than a decade. Even before the release of the national curriculum profiles for the key learning areas in 1994 teacher librarians across the nation were producing continua as supporting documentation for the services offered by the resource centre and its staff. Teacher librarians were already focusing on levels of attainment/achievement as progressive stages through a process of learning towards becoming information literate. Over time this has expanded to accommodate the advances in information and communication technologies, increased globalisation of learning and different learning environments.

In 1993 the Western Australia Department of Education produced a draft document, *Information skills continuum*, which combined learning outcomes from all the key learning areas into a generic set of learning outcomes which specifically reflected the developmental process of information skills development. Levels 1 to 6 were developed for each of the stages of the information process as presented in *Learning for the future: developing information services for Australian schools*. Indicators were developed for each level and outcome, which would guide teachers and teacher librarians to identify what to look for as demonstrated evidence of competence.

The national professional association representing teacher librarians, the Australian School Library Association (ASLA), applied for the copyright release of the above draft document to include in the multimedia CD-ROM, *Teaching Information Skills: Professional development CD-ROM*. The draft material was massaged, reviewed and adjusted to accommodate the eight national curriculum profile documents released in 1994 for all Australian schools. *The information process continuum: levels of skills development* documentation became an integral and crucial component of the multimedia CD-ROM in the Case Studies section. Samples of work produced by learners in each case study were placed against the outcomes and indicators to assess/evaluate the level of performance. The CD-ROM, as in an outcomes approach, demonstrates there are

- different ways of learning
- different rates of learning, and
- different learning environments.

With the global release of the CD-ROM in 1997 it was evident that the inclusion of information skills in many of the strands in the curriculum profiles indicated an importance being placed on an inquiry approach to learning.

The planning overviews of Ryan and Capra (1999) and the current revision of *Learning for the future: developing information services in Australian schools* continues to add to and enhance the outcomes based approach to information skill development across the key learning areas.

Following the release of the national curriculum profiles for Australian schools many states and territories published their own documentation. Since 1994 there has been a lot of rework resulting in state/territory specific syllabus/curriculum direction for an outcome-based result. The rework has resulted in an even stronger emphasis on inquiry based learning across and within the key learning areas. Teacher librarians can choose to develop a school-based outcomes approach to information skill development (including information & communication technology), e.g. an information skills continuum, and/or familiarise themselves with the outcomes, as documented in each key learning area, that link to an information skills framework.

Structured approach for Queensland (Australia)

Each key learning area within the Queensland school curriculum is designed to support a lifelong learning process. The valued attributes of a lifelong learner within the Queensland curriculum are:

- “a knowledgeable person with deep understanding;
- a complex thinker;
- a creative person;
- an active investigator;
- an effective communicator;
- a participant in an interdependent world;
- a reflective and self-directed learner.” (SOSE: 2000: 4)

I firmly believe these attributes have been and are the ‘playing field’ of teacher librarians and open the door of opportunity to continue to be proactive in the development of outcomes-based units of work. A typical structure for the planning of a unit may be as follows:

1. Select a title / topic
2. Identify the core learning outcomes to be demonstrated
3. Develop a purpose for the unit, i.e. why are the students doing it?
4. Identify appropriate content / contexts
5. Identify what students are expected to know and do as a result of the unit
6. Identify possible activities and resources/tools, i.e. effective teaching and learning
7. Sequence the activities according to an inquiry-based approach, i.e. expanded information skills framework (an across the curriculum approach which integrates <i>Working Scientifically, Social and Environmental inquiries, etc</i>)
8. Develop assessment tasks and criteria
9. Plan evaluation

(Modified version of unit planning model – HPE: 2000: 92)

This structure continues to facilitate the co-operative planning process involving the teacher, teacher librarian and, where necessary, other teaching personnel. All parties need to be familiar with the outcomes and be willing to engage in shared learnings when it comes to planning teaching and learning methodologies, tools and resources. Step 7 allows for joint ownership of the information skills process and begins to familiarise the learner with the framework as well. The teaching of information skills (including information & communication technology skills) in context across all key learning areas allows for the skills to be constantly reinforced. In time, the skills and the process become an accepted part of the students' learning strategies. Hence, the attributes of lifelong learning, as outlined above, can be addressed within this structure.

Should learners 'fall below' the level assigned to the unit of work, the teacher librarian is strategically placed to assist with, for example,

- extra activities,
- opportunities to develop understanding of the purpose and content,
- different learning and teaching approaches,
- alternate ways to explain expectations,
- a variety of learning activities and
- the completion of assessment tasks.

Outcomes of outcomes

"Today education is heralded as fundamental to public policy: fundamental to social cohesion, to economic development, to sustainable competitiveness, to human advancement, to the construction of world peace." (Carneiro: 1998)

An outcome-based curriculum helps to fulfil the commission of the UNESCO report and the national goals of The Adelaide Declaration.

It allows learners to

- experience personal and academic success and excellence as it recognises and accommodates difference
- understand and confidently utilise new and emerging technologies as information and communication tools through continued opportunities to know and do
- expand and improve their knowledge and skill base by progressive and developmental achievement as a means of empowerment
- develop and broaden their learning styles and modes through a variety of activities which demonstrate what they know and do
- recognise, acknowledge and accommodate cultural diversity, collaborative communities, global citizenship and the importance of interdependence through a broad base of curriculum strands
- understand and apply accumulated knowledge, skills, abilities and processes to attain personal, social and economic sustainability.

Leverage

Outcomes-based education represents a “recognition that teachers are central to education and that any sustainable approach to educational change stands little chance of success without the full support and active participation of teachers.” (Carneiro: 1998)

The active participation of teacher librarians in the development of outcome-based units of work continues to play out the certainty of what we do well. The paradox is that there may be moments of uncertainty as we grapple with the challenge and variety an outcomes approach may provide. Even so, teacher librarians who have diligently explored and addressed their continuing professional development needs are well positioned and even well connected to resource and service an outcomes-based curriculum. We are on our own continuum of lifelong learning, progressing through stages and levels of competency and achievement, set by us and/or others, to demonstrate what we know, what we can do and how we did it.

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The School Library as a Dynamo within the Learning Community of the School

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Abstract

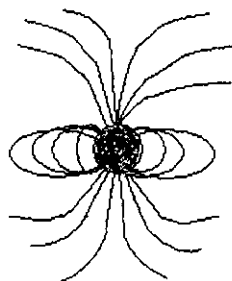
This paper demonstrates how a school library can be an intellectual power centre, a dynamo within the school, helping to build citizens of a knowledge society, using a variety of research-based units of work designed by teacher librarians at St Andrew's Cathedral School in collaboration with teachers across the curriculum. The types of units are information-skills-based units, units based on Bloom's Taxonomy, PowerPoint units, Internet research-based units. The paper also discusses the advantages of and strategies for using an Intranet to support teaching and learning as well as elements helpful for nurturing a culture of collaboration and a vital relevant library.

A fantasy of the school library

The image that comes to mind when I think of a vital school library is that of a dynamo. One dictionary defines 'dynamo' in this way:

"dynamo *n.* electrical current generator *Colloq.* Energetic person"
(Macquarie Office Manual)

It usually does feel electric and hectically busy, a productive place with staff who necessarily expend a lot of energy in their work of linking students and staff with information. Our teaching staff often describe the library by saying, "It's really buzzing". The word "dynamo" also stems from the same word as "dynamic" which is what we would like our libraries to be, dynamic places of intellectual and both real and vicarious emotional exploration and challenge.



Adapted from Dynamo Model (Effect)

<http://www.stcloudstate.edu/~phycsrse/astr106/images/dynamo.jpg>

Why do we do what we do?

Of course, we are interested not so much in how the library looks but in the genuine development of critically aware students who will be lifelong learners and contributing citizens of a knowledge society. As Dr Alan Bundy (2001, p. 7) perceives the situation:

“Teacher librarians – all librarians – have always implicitly had a personal and collegial vision of an information enabled Australia. That implicit vision now needs to be made explicit to push open the window of opportunity, which the clever country, information age, information society, information economy, knowledge culture, knowledge nation, the smart state and lifelong learning provide. That is our window of opportunity, because we alone recognize that the key issue of the so-called Information Age is not information technology. Rather the issue is, as Jamie McKenzie emphasises, information literacy. We know that all of the information and technology in the world will not, in themselves, create more informed, knowledgeable and wiser children and adults.”

And we are the dynamos - the specialists in information literacy. We have the special responsibility of connecting our students and colleagues to the world of information and providing relevant opportunities for intentionally building and honing their skills in accessing, selecting, evaluating and transforming information. As Jamie McKenzie (Hay, 1998, p. 7) expresses it, we as teacher librarians are "infotects", "antidotes to info-glut and info-garbage", helping others "to navigate through the information landscape". In my view, we are professional connectors; links but not static as in a chain – we are dynamic links, responding with sensitivity, insight and energy to develop information literacy in students.

How do we do it?

There are, of course, multitudes of ways and we can all learn something from each other. This is the approach at my school, St Andrew's Cathedral School in Sydney. The library staff (two secondary teacher librarians, one part-time primary teacher librarian) collaboratively plan with the classroom teacher, then design research-based units of work, teach and assess them. Generally the teacher librarian takes over most of the explanation of the unit and together with the subject teacher works alongside the students during the course of unit. The teacher librarians also resource the units, finding highly relevant websites and posting them on the school's Intranet as well as ensuring that there are adequate books and/or periodical resources available for the topic. If we do not have sufficient resources or the task is difficult to resource, we may develop resource packs of photocopied articles or excerpts from a book

We as the teacher librarians are given a brief by the classroom teacher, for example, a unit for Year 10 astronomy covering certain aspects of the syllabus or a Year 8 Maths unit on the history of Pi. We (the teacher librarians) then develop a unit and give the draft to the teacher for feedback, alterations or adjustments. We then hone it further. Generally two teacher librarians have input to each unit; we have found this collegiality very helpful and enriching both personally and for our work, as we bring different strengths and insights to bear on the unit.

The primary teacher librarian develops units which require meticulous thought and preparation as she seeks to help students develop their skills in using indexes and contents pages in books, navigate and get meaning from selected websites, use the library catalogue and formulate keywords. Some of the units developed have been on the 1850s gold rush in Australia, Aboriginal peoples, Antarctica, rainforests and the production of food. Many props

are used for these units, such as bread bags with brown paper loaves in them, jars of honey and empty milk cartons.

How do we motivate our students to learn?

We need to find keys to make our students excited about learning. Often this can be done by exposing them to a stimulus such as laminated pictures, discussion tapping into prior learning, models (as for example, in our Year 7 archaeology unit we use a model of the Tudor ship, the Mary Rose), modelling how to do a task, eg interpret historical information from a photograph. At the start of a unit on the Great Depression we hang enlarged laminated photos of the period on fishing line from the ceiling and ask the students to move around and look at them closely, then fill in their observations on a prepared sheet of paper. We attempt to engage their interest and emotions as well as their intellect. We are aware of our significant opportunity for shaping values and attitudes particularly with regard to indigenous issues. At the beginning of a unit on the explorers Burke and Wills who died of starvation in central Australia in the 1860s, we hang a very large map of Australia which shows in different colours the land areas of the many Aboriginal tribes and we trace Burke and Wills' journey through the arid interior. Their route is through the land of several tribes and we ask – why did they die when all these tribes survive well? As part of a unit on Aboriginal history we use several copies of a storybook called *The Drover's Boy*; we play the song on a CD player as students follow it in the book. It is a sad story of an Aboriginal woman who survived a massacre and travelled with drovers disguised as a boy but as the concubine of the head drover.

In the primary and Year 7 classes we often use a stations approach and label each station with the station name or number. In a unit on Ancient Egypt the class rotates around four stations, one using *Tutankhamun's diary* for translating hieroglyphs and answering questions about daily life in Egypt, another using websites to interpret tomb paintings. The third station uses several copies of the picture book *I am the mummy Heb-Nefert* as a springboard to writing a procedure for mummification and the last station works with a "model" of Tutankhamun's mummy wrapped in bandages with assorted amulets.

Information skills units

For information skills based units we have developed a proforma booklet that can be readily adapted for different subject areas. We try to have every class in at least Years 7-10 (12-16 year olds) do at least one information skills unit each year. Most Year 11 classes (17 year olds) also do one. Examples of areas we have covered with this type of unit are the Great Depression, Russia in 1904, the Olympics, the Celts, and astronomy. The information skills booklet explains the stages of the Information Process and the work of each stage in the booklet is marked so that not only the final product is evaluated but also how the students are negotiating the information landscape.

In the new syllabus documents that were introduced in our state, New South Wales, three years ago, there is a greatly increased emphasis on information skills; these are embedded within the outcomes and they are particularly apparent in the Science documents. For this reason we have encouraged our Science staff to work with us to develop a unit based on information skills. Each stage is assessed.

The Information Process for Research on Astronomy		
Step	Questions	Actions/responses
Defining	What do I want to find out? What is my purpose? Why do I need to find this out? What are key words/ideas of the task? What do I need to do?	Construct mind map Rewrite task in own words Underline keywords in task List keywords - broad, narrow
Locating	Where can I find information? What do I already know? What do I still need to find out? What sources and equipment can I use?	Investigate a variety of likely sources using keywords compiled in Defining eg OPACs, indexes in books, electronic indexes, full text sources, Internet
Selecting	What information do I really need to use? What information can I leave out? How relevant is the information I have found? How credible is the information I have found? How will I record the information I need?	Skimming and scanning chapter headings, sub headings, information in bold type, diagrams etc Evaluate websites Decide on headings for notetaking and design notemaking grid
Organising	How can I best use this information? Have I enough information for my purpose? Do I need to use all this information? How can I best combine information from different sources?	Enter notes under appropriate headings Start to combine information Consider accuracy and appropriateness of information given the audience and presentation requirements of task eg are graphics required?
Presenting	How can I present this information? What will I do with this information? With whom will I share this information?	Organise audiovisual equipment Choose and organise graphics, text for poster Complete poster Write and practise talk
Assessing	What did I learn from this? Did I fulfil my purpose? How did I go - with each step of the information process? How did I go - presenting this information? Where do I go from here?	

Table 1: Information Process for Research on Astronomy

Based on Dawson, M. & Kallenberger, N. (eds). (1988) *Information skills in the school*, p.8.

For example, in the astronomy booklet the **Defining** phase asks students to define terms and develop a mind map of their area of the topic. Students can either be asked, prior to coming to the library, which areas they want to research. Otherwise the teacher assigns the questions according to ability level. For this unit the final products were a poster or visual presentation and an oral presentation to the class. Each student had a different question to research (pp. 4 & 5) but students were also within groups researching related topics and needed to have a group introduction in their presentation which indicated how their area fitted with the group's theme, e.g. "powering the universe".

In the **Selecting** phase students write down some relevant resources and websites they have found and also evaluate a nominated relevant website. Space is also provided for **Organising** and notemaking, a bibliography and self-assessment. In an area that is not the teacher librarian's area of expertise, the classroom teacher may mark the presentations while the teacher librarian marks the booklet. If the subject area is an area of the teacher librarian's

expertise the presentations may be jointly marked. We evaluate the units of work ourselves and improve them for the next time. We also modify them for less able classes.

Bloom's-based units

We also produce units based on Bloom's Taxonomy of Thinking Skills and sometimes use the Revised Taxonomy too.

Table 2: Bloom's Taxonomy and the Revised Taxonomy (Pohl, 2000).

BLOOM'S TAXONOMY OF THINKING SKILLS	THE NEWLY REVISED BLOOM'S TAXONOMY
Knowledge	Remembering
Comprehension	Understanding
Application	Applying
Analysis	Analysing
Synthesis	Evaluating
Evaluation	Creating

Examples of these units are:

The History of Pi, background research to the play *Away*, American Indians, plants and animals of the Snowy Mountains and Aboriginal experience to 1914. The initial phase usually involves some research on our part to come up with interesting relevant activities and then further negotiation with the teacher to decide which are most relevant. The History of Pi unit was done with a very capable Year 8 maths class and much of the information was from the Internet. We posted links to many sites on our intranet but the students could also search by themselves. They researched the history of Pi in considerable depth and enjoyed themselves a great deal as well. They liked finding the interesting facts about Pi (ratio of elephant's height to his foot size, etc.), plotting the relative sizes of the planets and their orbits and then exploring new skills by producing them as Excel graphs, developing a timeline of famous mathematicians connected with pi and then especially designing fun activities to use at a Pi Day party, such as a rap. The unit finished with a pizza lunch. Making the thinking skills explicit seems to be both empowering to students as well as providing motivation.

PowerPoint units

Motivation and focus is well maintained with boys when doing research that will culminate in a PowerPoint presentation. In doing these, I often give a brief tutorial on the main aspects of PowerPoint as well as a handout about its main features. Examples of this approach are:

- The lowest Year 7 class worked on a maths unit using timetables to help design a tour of four Sydney landmarks with information on each, researched the timetables of buses, trains and ferries and developed an itinerary for visiting the landmarks of their choice. The idea was that the class would go on an excursion and test out the tour on the best presentation.
- The Year 7 German class developed a virtual tour of Germany with pairs of students presenting information on different cities; this also involved self-assessment, peer-assessment as well as teacher-assessment.
- The lowest Year 9 maths class did a unit on Pythagoras and mathematics in Ancient, Greece, Rome and Egypt.

- Year 9 history developed presentations on different aspects of World War II, e.g. Battle of Britain, Kokoda Trail, D-Day, Hiroshima, Rommel, etc.
- Year 11 Ancient History recently completed presentations on different characters of the Ancient World, e.g. Homer, Sappho, Aristotle, Xerxes, Boudicca, Agrippina.

The presentations are shown in a room with a data projector attached to the library and the assignments are uploaded by students into a dropbox on the school's intranet.

PowerPoint units have some clear positive benefits for students

- Discouragement of plagiarism due to the need to summarise and understand the main points
- Encouraging creativity
- Developing problem-solving
- Increased ability to use and understand technology
- Evaluating the components of an effective presentation
- Learning how to synthesize the speech with the visual presentation
- Building confidence
- The sustained enthusiasm, motivation and interest engendered by the format
- The opportunity to share in each other's learning discoveries.

Internet-based units

We also prepare webquests, brief (2 period) units on a topic and Internet research-based units on current topics. One very successful brief and fun worksheet was on the Gallipoli campaign in World War I, a very significant event in Australian history. Tasks involved were translating distinctive ANZAC slang, plotting locations on a map of the Gallipoli peninsula, listening to the Prime Minister's moving speech on the Unknown Soldier, and seeking specific information about Kemal Ataturk and the memorial at Ari Burnu.

The Intranet

St Andrew's Cathedral School uses an AUC intranet (Authenticated User Community developed by Blair High School in the USA). The intranet allows staff and students access from home via the school's website, allows storage of files so they can be accessed on any computer in the school or from home, permits electronic lodgement of assignments such as PowerPoint presentations and enables staff to post assignments, links and information, and organise discussion groups. It is a significant factor and helps to integrate technology with teaching and learning, fosters communication, and provides motivation for students. It adds an authentic electronic dimension to the learning community of the school. More information about the AUC can be found at <http://auc.sourceforge.net/about.shtml>.

Significant elements underpinning the library's work

- A highly supportive principal
- A culture of collaboration, initially developed through working with one faculty and now spreading across the school
- The intranet as a means of easily delivering assignments, relevant links and opportunities for electronic discussion.
- Teaching-focused people-oriented teacher-librarians

- An arsenal of approaches to provide variety and creativity in learning tasks
- Opportunity for professional collaboration

How can a rich and dynamic library environment be developed and sustained in all school libraries regardless of the school's socio-economic status, the variations in funding and regardless of the digital divide? What are the vital factors?

This is a topic worthy of extended discussion and deep thought and I would encourage all teacher librarians to contribute their ideas. Some of the vital factors probably are:

- Positive attitude of the teacher librarian to staff and students
- Willingness to work collaboratively
- Careful selection and resourcing of the school curriculum, including photocopied resource packs when funds are low
- Challenging authentic and varied research tasks
- A very supportive principal

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New Opportunities: Teacher Librarians Managing Digital Learning Objects

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Abstract

Digital learning objects are new kinds of resources which teacher librarians will be required to manage and make accessible to teachers and students. In Australia there are currently large-scale national and state initiatives underway to develop a critical mass of learning objects. The development of a Learning System Architecture has also become a vital step to make it possible to manage these learning objects. Packages that will enable students and teachers to communicate, collaborate, locate and access resources within intellectual property arrangements, assemble digital resources into learning sequences, assess and report are all necessary requirements. The Learning System Architecture emerging in Australia enables these disparate systems to function together as seamless and interoperable packages. A new profile of teacher librarian competency is being developed in Tasmania to assist with planning the professional learning needs of this group. The new profile includes understandings and experience of information communication technologies and online learning. Managing these new digital resources to support the teaching and learning is a key new professional role for teacher librarians.

This paper will discuss the new challenges that teacher librarians will encounter with the organization and management of electronic resources with a particular focus on the management of digital learning objects. Teacher librarians now have to manage collections that are not only physical but also digital, that are not only using MARC cataloguing tools but also utilising metadata tools and standards. All these activities depend on high levels of technical infrastructure, connectivity and modern equipment. Current national and state initiatives in Australia to build a critical mass of online content and new services to support teaching and learning have added to the increase in the range of information services available and to the complexities of electronic resource provision.

New professional roles are emerging in the networked electronic information environment, in relation to digital resource discovery, the application of metadata and the development of portals, subject guides and gateways to maximise access to electronic resources for students and teachers. Information and Communication Technology (ICT) is providing growing opportunities for the management of electronic resources, which have the potential to improve the effectiveness of student learnings. Specialist skills are critical to the management of these electronic resources both at the system and school based levels.

These new electronic resources are described as learning objects and “defined as components of online content that have educational integrity. That is, they have educational value that is independent of the online content’s context. For example, a learning object could be any type of digital asset such as an animation, a video clip, a piece of text, a URL or a learning sequence of digital assets, so long as those assets had educational integrity”.¹

Online content is becoming an important priority with many governments around the world as e-learning is beginning to play a part in the delivery of education opportunities. E-learning has come to mean the enablement and delivery of asynchronous or synchronous education and training content (eg. multimedia presentation, simulations and assessment) over an intranet, or the Internet, to an end user device. The provision of online content can provide opportunities for e-learning to occur at a distance (distance education) in a normal classroom, library or at home. Online content therefore has the ability to transform both distance education and normal classroom practices.

In Australia a major national initiative is well underway to provide quality online content in the form of learning objects. The initiative is known as the Schools Online Curriculum Content Initiative (SOCCI) conducted by the Le@rning Federation. In 2001 the Prime Minister announced a \$34.1 million grant over five years (with matching funding by the States and territories) to produce high quality online content. Over the past few years there has already been strong investment by all Australian public schooling systems in equipment and connectivity. This new Federal initiative is intended to increase the much-needed content for use by the schools. The funds will be used to create a critical mass of online learning objects in agreed curriculum areas such as science, mathematics, literacy for students at risk, languages other than English, innovations enterprise and creativity and studies of Australia. These materials will be made available free to all teachers in Australian schools. The development of learning objects provides a great deal of flexibility and educational opportunity without locking in teachers and students into proprietary solutions. Learning objects can be identified, tracked, referenced, used and reused for a variety of learning purposes. Learning objects can be used as discrete “chunks” of content or can be linked or chunked to form learning sequences.

In the real world of classroom teaching “it is not envisaged that these new learning objects will replace books, videotapes, etc or students talking, observing or doing. Nevertheless they will provide opportunities for content to be produced which may:-

- explain or demonstrate concepts which are more difficult to do so in other mediums,
- replicate processes which are dangerous or difficult to reproduce in several classrooms,
- explain processes which require repetition for proof or testing,
- use ideas which require connections beyond the experiences of the learner.”²

Obviously some of the characteristics inherent in the digital media such as its capacity for simulation, the drag and drop capabilities (to make connections like Lego blocks) and its ability to engage students in collaborative learning make it another important educational tool available to learners.

¹ Curriculum Corporation, Metadata Application Profile 0.9. P1

² The Le@rning Federation, Schools Online Curriculum Content , a major initiative for schools. Feb 20th 2002 p2.

The Le@rning Federation in Australia has concentrated on producing learning content in areas of high need and development is well underway for the production of science materials grades 1 to 6 and 9 to 10, as well as numeracy and mathematics years 1 to 9. Other content areas planned are languages other than English (Chinese, Indonesian and Japanese) all year levels, literacy years 5 to 9 and Studies of Australia, at all levels.

The Initiative is following the international IMS Global Learning Consortium standards designed as technical specifications for the distributed management of learning. These interoperable standards include metadata, digital rights and accessibility specifications and are fundamental to the distributed management and access to learning objects across Australia and to the world. An Intellectual Property Rights Management System is also being developed to enable the use of public and private content to meet quality, technical and interoperable standards.

All materials produced by this Initiative will be "tagged". These "tags" or metadata become the means by which online learning objects can be discovered, organised and made available with reference also to licensing agreements. The "tags" will use agreed and standard sets of terms for such things as subject/topic, year level, skill, learning outcome, nature of learning activity (eg. critical thinking activity, communication activity, experiment etc), and learning design (eg. auditory learning, independent learning, problem solving, team teaching, testing, etc). The use of the metadata tags will also make it possible for state systems to match the resources to local curriculum frameworks and student outcomes, adding a greater degree of specificity to the existing indexing.

The learning objects produced by the Le@rning Federation will be stored in a digital repository, known as the Learning Exchange and through an agreed set of protocols and standards, State education authorities will access the Learning Exchange. The Learning Exchange software application will manage the acquisition, hosting, distribution and intellectual rights management of the new digital resources. The delivery of the content from the Exchange to the schools will be State's responsibility. The learning objects will be "transported" with their metadata to local State systems. This will enable in particular the management of the intellectual property rights associated with them to remain with the object. Teachers will be able to reassemble the learning objects and repurpose them within a nationally agreed framework, which importantly provides a secure environment for commercial developers.

The Le@rning Federation has engaged two organizations to conduct major aspects of the Initiative. The Curriculum Corporation is managing the content development, which includes sending tenders out to commercial companies, and providing quality assurance processes from educational reference committees made up of teachers. *education.au limited* is brokering the information systems and interoperability standards, including the Intellectual Property Rights Management System. Extensive trials will be carried out involving students and teachers at each stage of product development. The first consignment of learning objects (science objects) will be available in August 2002 for delivery to the States.

The next critical step is for state educational authorities in Australia to take the nationally produced content and make it available for use within their State schools. The development of relevant local initiatives to manage the distribution of the content is now a

major activity. I will refer to my own state, Tasmania, since it is a case study with which I am familiar. Tasmania is Australia's smallest State with a population of less than half a million, two hundred and eighteen public schools and approximately seventy thousand students. The State has a reputation for high quality education and public library systems. The education and library sectors work closely together providing services to their core clients and because of their expertise they often develop information and educational services across other government agencies, eg. The Service Tasmania Initiative. The schools and public libraries share the same automated library system (GEAC) enabling shared cataloguing, enhanced interlibrary loan systems and effective resource discovery across the whole State.

The Department of Education has developed highly effective technical infrastructure and has delivered high quality professional learning programs to support the use of ICT in schools. Ninety five percent of Tasmanian schools have ISDN lines (and some with ASDL lines), which connect them to the Internet. There is one modern Pentium computer to every five students. All computers are connected to networked servers, which are supported by professional technical staff. Major application software packages are hosted and supported centrally. Our schools require software packages for diverse functions including - resource discovery, library management, course management, assessment, student and staff profiles and financial management. In most cases Tasmania has acquired commercial packages to meet these needs however in some cases custom-built software has been developed. The latter is the case with the development of an XML digital resource databank (DRD) or repository. This was developed three years ago to provide a "bucket" or web store of resources for teachers and it also contained some of the functionality of a content management system. This "bucket" of digital learning resources and its associated services is located at the *Discover* website, the Department's e-learning web portal for teachers. This portal found at www.discover.tased.edu.au also integrates a range of commercially produced software packages including a learning management system and some online communication and collaborative tools. Resources are added to the repository by completing an input wizard containing fields of metadata. Metadata standards comply with international Dublin Core and National EdNA (Education Network Australia) standards. Resources are moderated for quality assurance purposes.

An emerging need, is for Tasmania's existing portfolio of software applications to be interoperable to enable us to exchange digital resources and information and to manage the new processes associated with The Learning Exchange, which have been described above. As part of this activity the Department of Education in Tasmania is developing learning systems architecture to facilitate the seamless integration of application packages and services for teachers and learners.

The diagram below outlines the components of the learning system architecture.¹

Learning System Architecture

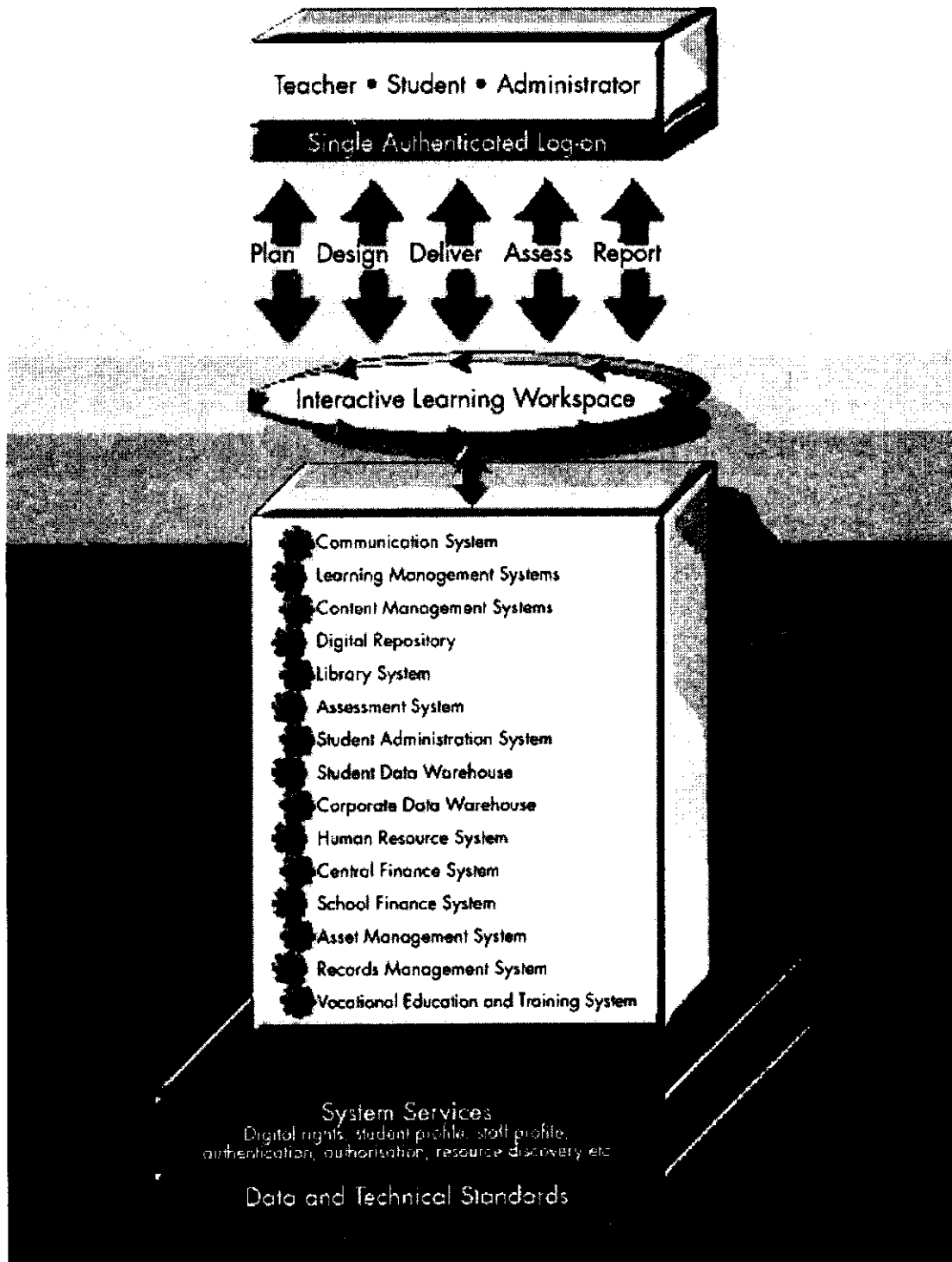


Figure 1. Learning System Architecture

¹ MCEETYA ICT in Schools Taskforce 2002 'Developing a National Learning System Architecture Framework for the Australian School Sector, Discussion Paper, 12th March 2002.

The architecture describes a single authenticated log on to provide access to the range of integrated software applications and processes. A teacher, for example, might wish to plan and design a unit of work. The teacher would have access to, eg. email (the communication system), to be able to search the digital repository (in Tasmania's case the *Discover* digital repository), search the local school library's holdings, search the nearby school libraries, and designated public libraries, and be able to assemble and deliver resources within a learning management system (currently in Tasmania we have a WebCT state-wide licence). The development of a workspace for teachers and students to conduct these searches and to plan, design and deliver online learning experiences is commonly referred to as the Resource Assembly function.

In Tasmania the design of this architectural framework involves integrating commercially produced software packages with locally designed and produced packages. There is a priority to design the learning system architecture to match national and international standards. Our challenge is to implement this initiative for the K-12 school sector. A discussion paper has been produced for all Australian States explaining the need for a complementary nationally agreed to architecture. The paper also sets out the relevant steps whereby all the stakeholders could become involved in this collaborative initiative. It is anticipated that if the whole of the education sector was clear about its learning system architecture it could become a powerful group in influencing the design of future commercial software applications. National progress is underway with this initiative.

Implementation of the learning system architecture in Tasmania is providing a number of opportunities for teacher librarians to work with information system personnel. The need to integrate the storage and discoverability of a diversity of information sources at the state level includes such activities as: - rescoping our digital repository, building or buying a content management system and integrating our proprietary learning management and library management systems. Teacher librarians have both the understandings of the teacher and student needs in mind, as well as the expertise to develop and apply standards (such as metadata and Z39.50 protocols) in order to facilitate the integration and coordination of heterogeneous databases, catalogues and digital repositories.

Teacher librarians have recently gained experience working at the state system level by developing and applying metadata to the Department of Education's website (which consists of approximately 200 sub webs). The task has also involved the design and implementation of a resource discovery service for the Department's website. These teacher librarians have indexed the resources using Dublin Core and EdNA standards metadata as well as tagging the resources to the navigational pathways. They have also maintained quality assurance processes on the site.

During the past three years the Department of Education in Tasmania has been involved in a partnership with multimedia companies to develop digital content for teaching and learning. One hundred and thirteen modules of rich multimedia content comprised of over 500 learning objects have been developed in the nationally funded initiative named the OPENIT Project. The OPENIT Project team who now work on the staff of *e-magine*, The Centre of Excellence in Online Learning have demonstrated extensive pedagogical expertise in e learning. They now have a successful track record of working with commercial companies to design, prototype, and trial and develop content.

Professional learning in Tasmania is currently concentrating on assisting teachers to effectively use this content. Teachers are able to access these multimedia materials through the *Discover* digital repository. Teachers are able to browse these materials or request copies for use in the learning management system. Teachers are also shown how to change or repurpose these materials for their own use. The materials are available free to all Australian government schools and independent schools in Tasmania and will soon be made available for purchase to other markets. Browsing copies of these high quality resources can be found at URL <http://www.discover.tased.edu.au/netlearn/course/st.htm>. Teacher librarians have been employed to assist with the resource discovery, resource annotations, metadata descriptions and in constructing logical pathways and links to these new electronic resources.

Discover, Tasmania's e-learning web portal has been primarily servicing the resource and professional learning needs of teachers, with particular focus on local teacher networks, local curriculum frameworks and local content. *Discover* points to the EdNA national educational gateway and service. This national gateway has assembled a critical mass of quality educational materials in core and targeted educational areas over the past few years. EdNA not only provides value to Australian classrooms by providing access to the best and latest curriculum and support materials, it also provides access to a wealth of online collaborative projects. EdNA has also been a leader in developing standards and pooling expertise around the nation. EdNA's main audience, like *Discover's* has been primarily teachers. Tasmanian teacher librarians have benefited from the expertise and trail blazing leadership roles, which EdNA has forged.

However it was recently discussed within the Department of Education in Tasmania that both services did not meet the needs of students. Whilst many digital resources indexed could be accessed and used by independent learners, resource discovery was teacher focussed and indexing was not granular enough to meet student needs. The Department decided to custom build a student portal named "*The Student Freeway*".

The Student Freeway is currently under construction and will provide easy access to selected and evaluated web resources for Tasmanian grades 3-12 students to support their educational activities. It will apply national standards to index resources to optimise the discovery of resources. It will also provide a consolidation of portals useful to Tasmanian students.

The e-learning portal for students will add electronic resources to the single digital repository and by the use of specific metadata tags, the resources will be returned in several "look and feels" suitable to the age range of the students/users. Multiple presentations of the one piece of data are now becoming a common characteristic of content management systems and will be an important feature of this Project.

The student portal will be a space for students to engage with others, it will have collaborative input and it will take students to the content within sites (not just to the front door of websites). We believe that this service is a unique development. Most gateways for students in the global market are either commercial or attached to portals designed for teachers.

Table 1 is included below to further explain additional features of the portal.

Table 1¹
Summary of essential points related to The Student Freeway

- *The Student Freeway* will provide equity of access to all Tasmanian students. It will feature the Tasmanian syllabus, Tasmanian Essential Learnings and focus on Tasmanian content.
- *The Student Freeway* will promote, extend, and support learning by Tasmanian students. It will be a point students can go for revision and remediation. It will provide ways for students to see possibilities and make connections with successful Tasmanians/ Australians.
- *The Student Freeway* will provide quick and efficient access to relevant information. Tasmanian students will find something to help them.
- *The Student Freeway* will be designed for students in Tasmanian schools from Grade 3 to Grade 12. Parents helping students with homework will be encouraged to use this as a first step and Teachers will be able to direct students to specific sites. Teacher Librarians will use this as the entry point for students to the Internet. Special needs groups will be considered.
- Tasmanian students will be able to see exemplars of work related to their own study and there will be opportunities to link with “homework buddies”
- Tasmanian students will be able to log in and this will allow a student to make a personal profile. Two profiles will be developed to suit junior and senior students. Students will be able to personalise their profiles to some extent for example lists of most used sites, most recently used sites and add other items to make this their own space. Other users will access the site in a public mode.
- Log in will offer extra features including opportunities for interaction and collaboration, reference tools, email to/from Tasmanian schools,
- Teachers will be able to tag a list of resources. A search by students will bring up this list.

This Project is another example of the use of teacher librarians and their specialist skills. Teacher librarians are being used because of their understanding of networked environments, their ability to select relevant and high quality digital resources, their skills to provide resource descriptions and annotations, and also their ability to value add with evaluative metadata, eg. Ratings systems. They are also able to design structured pathways to discover the content. Teacher librarians also have high quality indexing skills in relation to the curriculum needs of Tasmanian students.

¹ Williams, Isobel (2002) *The Student Freeway* Unpublished Manuscript

So far in this paper I have highlighted examples of the special expertise of teacher librarians and their work in national and state based initiatives to manage digital content and in particular digital learning objects. I now want to focus on the utilization of their skills at the school level and how these initiatives will be managed locally.

If we take the information resource management landscape in terms of the Tasmanian scene, a teacher librarian will now have to grapple with the following scenario: -

- a collection development policy that takes into account learning objects from the Le@rning Federation, the *Discover* digital repository, including OPENIT materials, and locally produced teacher resources,
- the provision of digital document delivery services,
- an Intranet of locally identified Internet sites/web based resources utilizing locally organised subject guides/pathfinders to assist in resource discovery,
- the integration of proprietary software, eg. Schoolsnet, library management systems (GEAC) and learning management systems (WebCT),
- the management of online indexes, full text periodical services and e-books,
- the provision of services such as links from the OPAC catalogue record to scanned content/pages, reviews or related web sites,
- the management of licences, copyright, digital rights, intellectual property and privacy requirements,
- the management of mobile devices, such as handheld, tablet computers and laptops,
- the management of students accessing courses online at school, at home or in a community facility,
- the participation in collaborative projects with teachers and students,
- the provision of networked CD ROMs and the
- archiving of digital resources.

This list is probably incomplete but it does enable us to address the growing complexity of the work of a teacher librarian.

In Tasmania we intend to assist teacher librarians in the school settings in two ways. One supportive initiative is to build interfaces and applications for use on the school based computers to connect to the software application and processes contained within the learning system architecture. These developments would enable students and teachers to access local repositories (maybe located on school intranets) and remote repositories, as well as other packages required to conduct teaching and learning. The second initiative is to develop a profile of teacher librarian competency, taking into account the understandings and experience of information communication technologies and online learning as key components. A professional learning program will be planned and implemented to match the new profile of competency.

To date a project at the state level work has commenced to develop the learning system architecture previously mentioned. Work has also commenced to assist teacher librarians to seamlessly manage their own school based resources and those, which their users will need to access from remote repositories with the development of new software applications and interfaces. It is intended to retain the *Discover's* digital databank as the main central repository of Le@rning Federation objects, the OPENIT online modules and other centrally developed resources. Teachers and students would access these resources utilising the new interface. Once an object has been located it will be made available to the

student or teacher. The object may have been retrieved from the school server or from the central repository as it is our intention is to do regular dumps from the central server to school servers of many of the digital resources. By this means, much bandwidth can be saved in the reduction of the transfer of objects up and down the line.

Teachers may produce their own learning objects or modify existing ones. By a series of wizards new or modified resources will be added to local school servers. The wizards will contain fields for the entry of metadata to enable discoverability via the school intranet. Work has also commenced on enabling one search to be conducted to discover resources in the digital repository, the school library's collection and in the central state collection of media resources. Teachers, students and teacher librarians would have multiple pathways and entry points to discover these resources. They could enter via the school's intranet page, the school's Internet page, *The Student Freeway*, *Discover's* home page, the school library's home page or the public library's home page. As yet we are not daunted by the interoperability problems, but are challenged by the curriculum and pedagogical needs of teachers and students.

Teacher librarians will need to have the skills to manage these disparately located resources and to be confident in the use of a range of software applications. Local school based web stores will need to be organised using metadata to assist with resource discovery. The use of centrally provided wizards will provide support with this task. A local search engine will be required on each school server to provide a solution to efficient and effective resource discovery.

Whilst not all the details of this strategy have been worked out the key functionality required has been scoped to assist as a practical guide to future developments.

Success in achieving desired standards of professionalism in teacher librarianship will depend on assisting teacher librarians to aspire to develop new skills and knowledge in order to be able to participate in these emerging fields of librarianship.

e-magine, the Centre of Excellence in Online Learning in Tasmania recognises the important role of teacher librarians and has initiated a major project to develop a profile of teacher librarian competency. The intention of the profile is to scope the work of current practitioners, to identify the new areas of knowledge, skills and understandings required and to develop and implement a professional learning plan for our practitioners.

The draft profile has identified key areas of competence in the areas of: - principles of school librarianship, teaching and learning, leadership and advocacy, information services and knowledge management, library policy and building partnerships. The profile is organised under the key areas of competence, the desired learning, evidences of competency and learning opportunities. A major thrust of the Centre will be to provide the delivery of some of the content of the professional learning program online. Planning is underway to complete the profile and implement the associated professional learning program in the latter half of 2002.

The competency profile is also being developed to plan a new Graduate Certificate in Information Management. This Graduate Certificate will be offered to teachers in schools who may wish to take on new responsibilities to manage school library collections. Like

many places in the world at the moment Tasmania has a dwindling number of teacher librarians working in schools. This has occurred for a number of reasons however it is true that we do not offer any local training opportunities. The Graduate Certificate would be nationally accredited and would be conducted by the Department of Education as one of the providers in Tasmania. The University of Tasmania plans to introduce a new Graduate Diploma in Information Management in 2003 with a teacher librarianship stream. The completion of Graduate Certificate would enable a fifty percent credit to the Graduate Diploma course, thus providing an attractive pathway for teachers in our schools. Both these new courses reflect the current and emerging new skills and competencies required to manage school libraries.

Learning in an Online World states that "all school teachers and students must have access to quality digital education resources that support curriculum outcomes. The development of such resources must support Australia's unique identity in the global information economy".¹ To provide online content there needs to be a partnership between educators - to determine what content is required, information managers (teacher librarians) to manage and organise content and ICT professionals to provide the technical infrastructure to get the resources to the screen. Skills associated with these tasks are building in Tasmania's educational settings. Providing support to use the content by our Tasmanian teachers and students is also a key area of work. *e-magine* has a well developed professional learning program for all our state's teachers. Information literacy, information technology literacy and the use of a learning management system are also important areas of this program.

As more and more learning will involve both classroom and online learning, *e-magine's* role is critical to supporting the developments outlined in this paper. School libraries of the future will combine a managed place and a managed digital space.

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Developing a Knowledge Society through Teacher Librarians: A Conceptual Model For Sri Lanka

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Abstract

This paper briefly discusses the knowledge society and characteristics of the knowledge society at the beginning. Secondly it discusses the implications of knowledge society on education and the role of teacher librarian in the knowledge society. Then it goes on to discuss the education system of Sri Lanka, status of school libraries in Sri Lanka, the second General Education Project which supports the implementation of education reforms and the establishment of National Institute of Library and Information Science (NILIS) with an emphasis on training of teacher librarians by NILIS. Finally it describes the implementation model of its knowledge skills programme and the model and contents of the actual knowledge skills programme. The paper is concluded with some remarks on the factors, which will affect the success of the project.

Knowledge Society

We are superseding the "Information Society" in which the emphasis was on up to date information. Educators, social scientists, policy makers and the like are realizing that information is not power anymore. It is the human understanding and knowledge that is power and information is how you get knowledge (Todd 2001). A society, which is well informed and knows how to use the information for the betterment of that society, is the "Knowledge Society". Attaining the knowledge society has become the central theme of many national policies in almost every nation.

In a knowledge society, the basic economic resources are no longer capital, natural resources or labour, but knowledge is. According to Drucker (1994) blue-collar workers grew phenomenally in the first half of the 20th century. But in the last forty years, have declined rapidly first as a proportion of the total and since early 1980s even in absolute numbers. Instead a new group of workers is emerging in the post-industrial workplace. This new group is the knowledge workers.

These knowledge workers, though only a minority of the workforce already give the emerging knowledge society its character, its leadership and its social profile. They may not be the ruling class of the knowledge society but they already are its leading class according to Drucker (1994).

Characteristics of the Knowledge Society

Drucker (1994) has pointed out that knowledge society has several significant characteristics.

The knowledge worker gains access to work, job and social position through formal education and this formal education required for knowledge work is education that can only be acquired through formal schooling. It cannot be acquired through apprenticeship. Education will be the centre of the knowledge society and schooling its key institution.

However it does not mean that the traditional school is becoming more important. In the knowledge society more and more knowledge and especially the advanced knowledge will be acquired beyond the school and beyond the formal age of schooling. This knowledge acquisition will be alternative educational routes in addition to the traditional routes of learning.

Acquisition of knowledge will no longer depend on obtaining a prearranged education at any given age. Learning will become possible at any age through means of new learning technologies.

The performance of an individual, an organization, an industry or a country in acquiring and applying knowledge will increasingly become the key competitive factor for career and earnings opportunities of individuals; for the performance and simply for the survival.

“The knowledge society will inevitably become far more competitive than any society we have yet known for the simple reason that with knowledge being universally accessible there are no excuses for non-performance. There will be no *poor* countries. There will only be *ignorant* countries” (Drucker 1994).

“Knowledge” of the knowledge society is essentially different from the “knowledge” in the earlier society. In the knowledge society, knowledge basically exists only in application and this knowledge application is highly specialised, therefore not applicable to anything else.

The predominant labour force in the knowledge society will consist of highly specialised people. Because of this specialisation they will always have to work in teams. “Teams become the actual work unit rather than the individual. The individual knowledge worker has to learn how to switch from one kind of a team to another, how to integrate into a team, what to expect of a team and how to contribute to a team” (Drucker 1994).

“If Drucker’s vision of knowledge society is correct the definition of an “Educated Person” will be radically changed. Traditionally it has been assumed that a well-educated person was one who had a formal, broad-based liberal arts background. The educated person of the future will be one who has the capacity to continually learn new concepts and modes of operation throughout his / her lifetime” (Dunlap 1995).

In summary, the significant characteristics of the knowledge society are: the education becoming an essential element, learning going on throughout the life span of an individual (lifelong learning), formal school losing its importance as the only place where learning can

be acquired, emphasis on the “application of knowledge” instead of the “collection of facts” as knowledge, and increased access to learning through ICT.

Implications of Knowledge Society on Education

Knowledge has four major categories (Forray and Lundvall 1996).

Knowing what – procedural knowledge which involves transfer of codified knowledge into facts

Knowing why which involves transfer of basic principles, rules and ideas.

Knowing how – knowledge that derives from direct experience or “know how”.

Knowing who – knowledge that involves the ability to communicate and work in teams.

Significance of procedural knowledge (*Knowing what*) is fading. Its place is gradually taken by the need to learn how to acquire facts and transform them into new knowledge. This implies that the aim of education is to develop cognitive skills and crucially to instil curiosity, both to equip the student with the knowledge of how to learn, the ability to learn and desire to learn (ILO 2001).

“For work in the knowledge economy, there is no way to economic and social prosperity other than to make learning and knowledge creation the central skill taught in schools and harnessed at the workplace” (ILO 2001). Any country aiming towards the knowledge society has to take this fact into consideration in planning its national education system.

The role of the student in the knowledge society is being changed from receiving the imparted knowledge passively to being more interactive and responsible for their learning. The role of the teacher is also changing from didactic nature to a more facilitative nature. Instead of delivering facts, the teacher of the knowledge society has to play a more active role in the students’ learning process by encouraging and training them for independent and lifelong learning.

Information and communications technology has become an essential tool for education in the knowledge society. Through communication networks individuals can have access to learning from a distance, and access to learning beyond the formal school. Adult learning and retraining are facilitated through networks. Access to information, which is the vital source of knowledge, is provided beyond the geographical boundaries of the information sources. These possibilities have profound effects on the role of the teachers in the knowledge society. In order to cater to the contemporary students, teachers have to be empowered in the necessary skills required for the knowledge society.

Literacy Skills for the Knowledge Society (2002a) states “that literacy means more than knowing how to read, write or calculate. It involves **understanding** and **being able to use** the information required to function effectively in the knowledge-based societies that will dominate the twenty-first century.” These skills are defined as follows:

Prose literacy: the knowledge and skills needed to understand and use information from texts including editorials, news stories, poems and fiction.

Document literacy: the knowledge and skills required to locate and use information contained in various formats, including job applications, payroll forms, transportation schedules, maps tables and graphics.

Quantitative literacy: the knowledge and literacy skills required to apply arithmetic operations, either alone or sequentially, to numbers embedded in printed materials, such as balancing a chequebook, figuring out a trip, completing an order form or determining the amount of interest on a loan from an advertisement. (*Literacy Skills for the Knowledge Society* 2002b)

It also defines five broad levels of literacy ranging from level one to five. Level one indicates very low literacy skills where as level five indicates increasingly higher literacy skills requiring the ability to integrate several sources of information or solve more complex problems. It is the level five literacy of a country's population, which should be targeted at, through the education system.

Role of the Teacher Librarian in the Knowledge Society

As the contemporary schools change their structure and pedagogical methods to encourage active learning instead of passive learning, dependency on resources other than the classroom teaching will increase. This will change radically the role played by the teacher librarian so far.

Resource based learning will require more resources than what is available in the school library. This will call for the librarian to move out of the library building especially through information technology in search of relevant information.

The librarian will not only have to search for information but train the teachers as well as the students in searching, evaluating and retrieving information contained in a variety of formats.

In order to encourage lifelong learning and learning to learn, schools will be using more participative learning strategies. Teachers will be planning self-study projects to a greater extent for students and the teacher librarian will have to collaborate with the teachers and school administrators in satisfying the information needs of the students.

When students are encouraged to use resources increasingly, they will have to be educated on copyright laws and plagiarism. Teacher librarian will be the one who has to be responsible for this task.

The teacher librarian will have a responsibility not only in locating information but also ensuring that such information is used in a productive manner. Application of information to generate new knowledge has to be facilitated by the teacher librarian.

With the changing role of the school library, the librarian will face more management challenges. Resources will be scarce and the requirements unlimited, hence careful budgetary control will be needed. Different modes of information retrieval and delivery will require constant training and retraining of the staff. More work in a complex environment will require time management skills. Above all the librarian will have to be adept in connecting the information resources available globally and the users together through the efficient exploitation of information and communications technology.

Education System in Sri Lanka

Sri Lanka recognizes education as a universal human right, in conformity with the Charter of the United Nations. Sri Lanka has endorsed the UN convention on the Rights of the Child and sanctioned the World Declaration on "Education for all" which seeks to universalise elementary education. Eradication of illiteracy is a guiding principal of the state policy. Universal free education has been in practice in Sri Lanka since 1945 as a result of this policy.

However an objective analysis of the achievements of the past six decades indicated that the results are unassuming. Didactic teaching and rote method of learning characterized the education system of Sri Lanka. Acquiring knowledge, skills and attitudes necessary for successful living is not accentuated. Studies have indicated that the efficiency of present education system is at a low level. Output has failed to fit into the work opportunities that are available. There is a significant mismatch between education and employment. (National Education Commission 1997).

The failure of the output from the education system to fit into the work opportunities available in the country and their unrealistic ambitions in looking for white-collar employment has resulted in high levels of unemployment and underemployment among the educated youth.

This condition worsened when the government policy changed from state sector dominated economy to a private sector dominated economy. This change of policy has shifted the employment opportunities from the state sector to private sector.

The qualities and attributes that are most sought after by the present labour market, other than book knowledge are versatility and adaptability, confidence to face challenges, a positive work ethics, productivity and discipline, leadership and team work and most importantly communication skills. These qualities, the prerequisites of the knowledge society are reported to be lacking in many students who complete the current educational programmes (Central Bank of Sri Lanka 2001)

"It is a lack of investment in human capital, not a lack of investment in physical capital that prevents poor countries from catching up with rich ones. Educational attainment and public spending on education are co-related positively to economic growth." (Barro and Sal-i-Martin 1995).

Recognising the shortcomings of the education system of Sri Lanka and the inevitability of investing in human capital, National Education Commission was entrusted with the task of formulating a National Policy on Education in 1991. General Education reforms which is being implemented currently in Sri Lanka took into consideration these deficiencies and necessities in the national education system. Accordingly it concentrated on improving the quality of education as well as on co-curricular activities, value education and education for national integrity.

School Libraries in Sri Lanka

According to a survey carried out by the Ministry of education in 1995, out of about 8,000 public schools in the country (excluding North & East province), 70% had no library

facilities at all, 19% had identified spaces within the school, which had a small collection in a cupboard. Only 11% possessed a permanent library. An Assistant Secretary School Services from the Ministry of Education looked after school library sub-sector on a part-time basis.

A few international schools, public national schools and a few private schools have good libraries, but even in those schools where libraries are available, the basic collections and their organisation are deficient.

Very little budget allocations are being made therefore most of the books are out dated. Most of these libraries are not staffed with qualified librarians, but by teachers, volunteers or others on part time basis. Out of about 2000 personnel serving in the libraries only about 17.5% have acquired any qualification in library studies.

Little or no emphasis was given in the curriculum for the use of library resources. Most of the students are not even aware of the library. The person in charge of the library or the principal has to compensate for the lost books and this contributes to the fact that the students are not allowed to use them. Teachers, through lack of knowledge and lack of experience in using libraries as students, do not encourage students to read.

Second General Education Project

Policy makers realized the significance of empowering the nation's human resource in order to achieve the expected standards of development. As a consequence, initiatives were taken to improve the education system. Education reforms, encompassing all areas of primary, secondary and tertiary education have been introduced with the broad objective of enhancing learning achievements at all levels, in line with the needs of the market driven economy. General Education Project (GEP) was designed to support the government's national education policy reforms. The second phase of this project (GEP2) was to be effective from January 1998 with the aid of the International Development Agency of the World Bank.

This project had six components; Curriculum development, Textbooks and educational publications, School facilities rationalization, Quality inputs, Libraries and reading habits, Education management and planning.

Several major issues, which had to be addressed, were raised under the libraries component in the World Bank report (World Bank 1997):

- Lack of a defined library policy on libraries for educational institutions
- Inadequate management infrastructure to administer public and school libraries, and no designated senior official within the Ministry with librarianship qualifications or experience to be responsible for school libraries.
- Poorly trained or non-existent library personnel at all levels in the library and information services sector, and the inadequate emphasis given to reading and books in school curricula.
- Extremely limited space and facilities in schools for books to be obtained, stored (in permanent school libraries or temporary class libraries) and used appropriately, especially in rural areas.
- Books in school libraries are often out of date and irrelevant and not in languages spoken in the locality.

- Limited use by libraries of available telecommunications infrastructure to modernize libraries as information technology centres.
- Schools do not have regular budget allocations for libraries.
- Teachers have not been trained in library studies and current teacher librarian training is brief and inadequate
- The image of the librarian and teacher librarian is poor and hence there is little motivation for principals and teachers to support libraries and encourage reading habits.

The main objective therefore, of this component, is to support and stimulate an activity-based curriculum and to encourage the reading habit in the school and community by expanding, professionalizing and strengthening the management of the school library sector. Establishing school libraries according to school size, providing adequate books, furniture, and trained librarians, strengthening the management of the library sector, and establishing the National Institute of Library and Information Science (NILIS) to take over the staff development activities.

Under the Project 2000 existing and 2000 new school libraries will be developed and 4000 teachers with five years experience in teaching have been selected to be trained as teacher librarians. Twenty-five selected schools throughout the country will receive an Information Technology package for the benefit of the school communities.

Establishment of NILIS

National Institute of Library and Information Science (NILIS) was established in 1999 with the support of World Bank with the primary objective of educating the school librarians. It will cater to the 4000 teachers selected to become Teacher Librarians (TLs) and also to the personnel in public, industrial, commercial and academic libraries.

NILIS is an autonomous institution within the University of Colombo and its objectives are:

- To develop manpower resources equipped with appropriate professional knowledge, skills and competence capable of contributing effectively in
 - Planning, organization, management operation and development of library services, systems, centres and programmes.
 - Teaching and research in the field of Library and Information Sciences.
- To promote professional advancement of those already in the LIS service by organizing and conducting continuing educational programmes for their training and retraining.
- To conduct research and to disseminate the results of such research through publications, seminars, workshops and extension services.
- To liaise with and establish co-operation and link programmes with other national and international institutes having similar objectives and allied interests.

The institute was named as the National Institute because it is expected to serve the whole nation. It was agreed that the World Bank would provide funding for the construction of the building, equipment, furniture, foreign consultants, library materials and human resources development, while the University Grants Commission would provide funds for the recruitment of staff and maintenance.

Training of Teacher Librarians by NILIS

Having rich information collections, state-of-the-art physical structures or advanced information and communication facilities are not the hallmark of the school library, but its actions and evidence that show that it makes a real difference to student learning, that it contributes in tangible and significant ways to the development of human understanding, meaning making and constructing knowledge. The school library is about empowerment, connectivity, engagement, interactivity and its outcome is knowledge construction. (Todd 2001).

According to this philosophy, merely developing the school library infrastructure and providing theoretical knowledge to its staff will not be sufficient to achieve the knowledge society. The school library will have to expand its traditional service of providing books to the school community to encompass the variety of formats in which information is presented, and technology is used to access the information. Research has proved that good school libraries have a positive effect on academic achievements of the students. It is also proven that higher the instructional role of the school librarian higher the academic achievements of the students (Lance 1994 and Manzo 2000).

NILIS in planning its education and training programmes for the Teacher Librarians, recognizes the IFLA/UNESCO's mission statement of the school library that, "The school library provides information and ideas that are fundamental to functioning successfully in today's information and knowledge-based society. The school library equips students with life-long learning skills and develops the imagination, enabling them to live as responsible citizens" (IFLA/UNESCO 2000).

NILIS acknowledges the following goals of the school library proposed by ILFA/UNESCO manifesto.

- Supporting and enhancing educational goals as outlined in the school's mission and curriculum;
- Developing and sustaining in children the habit and enjoyment of reading and learning, and the use of libraries throughout their lives;
- Offering opportunities for experiences in creating and using information for knowledge, understanding, imagination and enjoyment;
- Supporting all students in learning and practicing skills for evaluating and using information, regardless of form, format or medium, including sensitivity to the modes of communication within the community;
- Providing access to local, regional, national and global resources and opportunities that expose learners to diverse ideas, experiences and opinions;
- Organizing activities that encourage cultural and social awareness and sensitivity;
- Working with students, teachers, administrators and parents to achieve the mission of the school;
- Proclaiming the concept that intellectual freedom and access to information are essential to effective and responsible citizenship and participation in a democracy;

- Promoting reading and the resources and services of the school library to the whole school community and beyond.

Courses planned by NILIS vary from certificate to postgraduate diploma level for teacher librarians and from 2003 it will offer higher degrees as well. In addition it will conduct a multiplicity of workshops for teachers, principals and other educational administrators on collaborative partnership of learning.

The 4000 teachers identified to be trained as teacher librarians, will be responsible for the development of school libraries, not in the sense of the traditional library, but in conformity with the IFLA/UNESCO manifesto. They will be expected to collaborate with the teachers and administrators in developing resource based learning projects, identifying information needs of the school community and necessary resources, maintaining the schools media centre, to promote use of information technology and Internet within the school community.

The Implementation Model of the Knowledge Skills Programme

NILIS recognizing the teacher librarian's role in the path towards a knowledge society, has designed a conceptual model to be superimposed on its proposed education programmes in order to introduce an inquiry based learning, which supports the inculcation of knowledge skills in teacher librarians. Thereby we expect to empower the teacher librarians so that they can play an instructional and supportive role for the school community to encourage them to develop their information skills and utilize the information in the process of knowledge construction. In turn it is expected that the students will become members of the knowledge society with an emphasis of learning to learn and contextual application of knowledge.

In addition, knowledge skills programme will be offered to the teachers of the National Colleges of Education through our formal education programmes. In turn They will be able to influence the school children through the schoolteachers and teacher librarians trained by them.

Knowledge society cannot be achieved by only empowering the school community. Many others who do not belong to the school community will be excluded from this program. To rectify this, NILIS plans to introduce information and knowledge skills to a plethora of other professionals through short-term programmes, workshops and seminars. Initially the postgraduate students of the Faculty of Education will be selected for this because they are already schoolteachers and administrators. Once they get back to education system they are expected to contribute to the empowering of school children. Bachelor of Education students will also be drawn in to the programme because they are the next significant group who can cater to the school community through their employment in the education system.

However teacher librarians will not be able to carry out their empowering role unless the principals, administrators and policy makers provide opportunities for inquiry-based learning and evaluate their students' knowledge augmentation appropriately. A collaborative partnership of all stakeholders is essential to provide knowledge construction opportunities

for school children, and it is vital for the success of the school library development project of Sri Lanka.

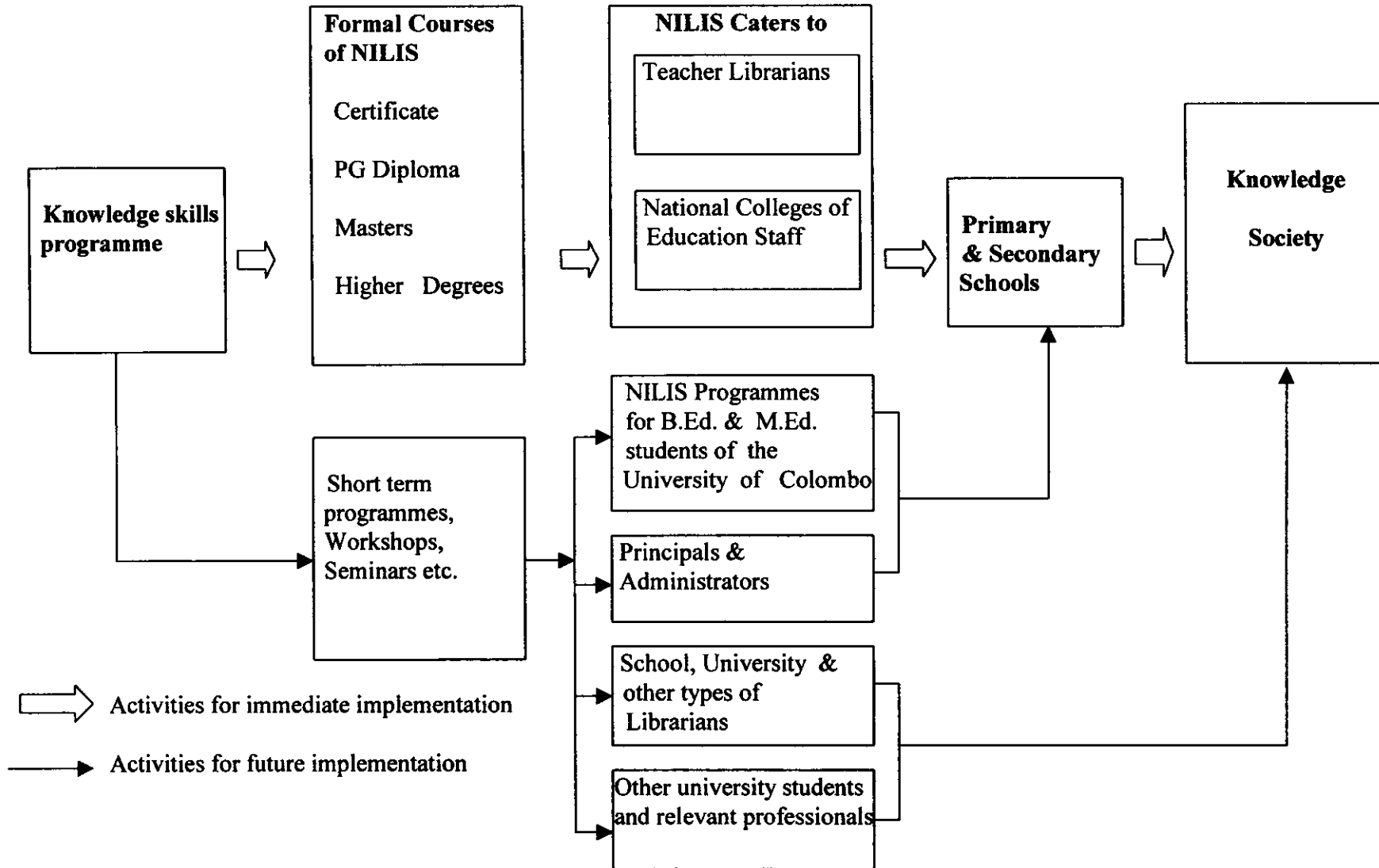
To establish such collaborative partnership and enlighten these groups of professionals, NILIS will offer the short-term programmes. These programmes will stress the significance of knowledge society, inquiry-based learning opportunities, and the necessity of collaborative partnerships for the empowerment of students. They will also provide an introduction to information and knowledge skills.

A knowledge society cannot be achieved only by empowering the current education system. Those who have completed their formal education will not be catered for, by the school system. Taking this into consideration this program will be extended to the other undergraduates of the University of Colombo. It is expected that exposure to our knowledge skills programme will enhance their capabilities in using, applying and creating new knowledge. However this will need the co-operation of the relevant Deans.

Students of the other universities will be drawn in through extending the programme to university librarians and teachers. They will be the future teachers, parents and employees with knowledge construction abilities. In this manner NILIS will implement its knowledge skills program encompassing all educational sectors within its purview.

The following figure depicts the proposed conceptual model.

Conceptual model of knowledge skills programme



Model of the Knowledge Skills Programme

This knowledge skills programme is designed to suit the current needs of the country and based on the present levels of awareness of the target groups. Therefore in the international context it will appear different or sometimes even strange. We have emphasised three major aspects, which seemed significant in the Sri Lankan context; Introduction to knowledge related concepts, knowledge management skills, and knowledge application skills.

In designing the first two aspects the, "skills for knowledge management" specified by the LIC/TFPL research (1999) was adopted to a certain extent and for the knowledge application skills aspect, PLUS model (Herring 1997) of information skills provision was adopted. The main principle criterion for selection of PLUS model was its simplicity and self-explanatory nature in contrast to the other models. Since NILIS and its courses as well as the target student groups are new to teacher librarianship, information literacy and knowledge society progressing from simple to complex was vital.

Introduction to knowledge related concepts

Our target group students and course participants have had limited opportunities to be exposed to the knowledge related concepts. Hence the concepts of knowledge including knowledge society, value, context and dynamics of knowledge and information will be introduced. Learning / intelligent organisations and knowledged / ignorant countries will be introduced. Different types of knowledge (tacit/explicit and external/internal) and different types of knowledge containers will be introduced. The level of introduction will vary according to the level course on which the knowledge skills programme is superimposed. Pedagogical method for this section will be introductory lectures and demonstrations

Knowledge management skills

The teacher librarians especially will have to act as knowledge managers within the schools stepping beyond the boundaries of the traditional library. In this endeavour, they need to possess the necessary skills. Communication, ability to work in teams, negotiation and sharing will be introduced through lectures and demonstrations. Practical experience will be provided through guided assignments in formal courses. Priority will be given to the introduction of web-based knowledge content, as current Sri Lankan content is scanty in the web. Effective use of ICT in the knowledge environment will be specially emphasised. Organisation of all types of knowledge will be introduced to teacher librarians.

Knowledge application skills

PLUS model will be specifically used here. Through practice assignments and self-study formal course participants will be trained in defining the Purpose, Location, Use and Self-evaluation of information. As this model is well known it will not require any further description here. The significance of knowledge application will be promoted among the School Principals and Administrators through seminars. Practical aspect will be promoted through purpose designed information skills workshops for different types of librarians and university students.

Success of the Programme Implementation

A major constraint for the successful implementation of the knowledge skills programme is the lack of a critical mass of teachers. Knowledge concepts or information literacy concepts have not been the buzzwords in Sri Lanka therefore awareness among

practicing librarians and the teachers is less. At the initial stages a handful of teachers will have to learn through self-study while a formal training is received perhaps through distance learning.

Negative attitudes towards "libraries" will be a drawback when arranging seminars for non-library educators and administrators. In this instance support from the Ministry of Education is vital to encourage participation through incentives.

Retaining the interest and dedication of the teacher librarians is imperative for the achievement of knowledge society through empowering the school children. They need to take an interest in promoting knowledge skills in the schools with a cascading effect to reap the full benefits of their training. To motivate the teacher librarians and to keep them abreast of global developments in teacher librarianship and to help their life long learning a professional association is essential. This may be considered by 2003 when a considerable number of teacher librarians are trained by NILIS.

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Western Theory – Vietnamese Praxis
*Four Years of Professional Collaboration in Vietnam
as a Teacher Librarian:
An Ethnographical Reflection*

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Abstract

This paper provides an ethnographical account of the experience of setting up an open access library of working alongside and in close collaboration with different parties within an academic environment over the period of four years in Hanoi. It provides useful lessons for consideration for those who would like to facilitate the blending of western practices in librarianship with local knowledge in developing countries such as Vietnam. It also presents a platform for an outside's view of the practice of teacher librarianship.

*"Where do we study and learn?
We study and learn at school, college or university.
We study and learn from books.
We study and learn together from each other."*

Ho Chi Minh

For teacher librarians, story telling is one of the tools of trade. I have a story to tell, a story in many voices. It is the story of my engagement in the practice of teacher librarianship in Vietnam. It is my story and it is their story. Like a beautiful piece of Vietnamese silk it is a story of many threads and like the history of the Vietnamese language it is a story of multiple voices.

Up to the 19th century, Chinese Han characters were used as the official written form of Vietnamese but the pronunciation was peculiarly Vietnamese. In the 16th century with the arrival of western missionaries, the new mandarins, a Latin based written form was devised. With the compilation of the *Vietnamese – Latin - Portuguese Dictionary* by Alexandre de Rhodes in 1651 this written form was made the official language of the French Administration in the 1900s. However it was only in the 20th century when Vietnamese patriots were able to use it as an effective vehicle for educating people because it was an easy

writing system to learn, that it became willingly and generally accepted by the Vietnamese people as their national script (Quoc ngu). In the beginning this script was invented to meet the needs of westerners but as much else has now been accepted, as a vehicle to serve Vietnamese needs.

For Vietnam, engagement with western library theory began with the arrival of the French in 1858. However, Vietnamese library practice has a much longer history. In 1070 Van Mieu "Temple of Literature" was built in Hanoi. The original purpose of this building was for the worshipping of the sages and saints of Confucianism. Six years later in 1076 the first university of Vietnam the national College, was built in the Temple grounds. In the beginning, in true Confucian spirit, this college was only for the princes of the realm but entrance criteria were later broadened to admit talented scholars from across Vietnam. It was essentially a school for the training of Vietnamese mandarins

In 1919 under the patronage of the French colonial government, when for the mandarin class of schooling the official language was now French; the Pierre Pasquier Library was established in Hanoi (picture). By 1939 it contained 92,163 books, 20% of which were in Vietnamese. Following the defeat of the French in 1954 it was renamed as the National Library of Vietnam and was Vietnamised under Soviet patronage and training where in turn the language of schooling for the mandarins had now become Russian. Almost as a cross section of tree trunk can reveal the climatic factors affecting its growth across the years, a cross sectional view the National Library's cataloguing systems reflects Vietnam's most recent foreign policy. French influenced to 1954 followed by the Russian BBK system and now post Doi Moi (Vietnamese Perestroika) some attempts to merge on their own terms, with the dominant US MARC compliant systems.

Such a brief telling of the story of Vietnam's engagement with the west has the danger of leading one to an over simplification of what has been and continues to be a very complex process. It is too simplistic to regard the development of libraries in non-western countries as a straightforward transition from 'old' to 'modern' based upon acquisition of knowledge and technologies originating in the west. The reality is much more multifaceted. Non-western countries with traditions of written history have developed various non-western storage and retrieval systems for the housing of records, and for the identification and organization of information resources that are in turn made available to client groups. As for any other non-western country, the Vietnamese praxis is uniquely Vietnamese but the goal for the practice of librarianship is generally a globally shared vision, incorporating the identification and organization of information according to the needs of the client communities.

As has already been signalled this is a multithreaded story I will now take you to November 1998 when I arrived in Hanoi where I was appointed as the Manager of Australian Vietnam Training (VAT) Project Centre Library.

This Project was set up by the Australian government (AusAID) in 1998 to support the Government of Vietnam's Human Resource Development objectives through provision of appropriate English language and technical skills training to Government employees and nominees for Australian Development Scholarships (ADS). Within the Project there are two key sub-projects, English Language and Technical Training. My specific brief was to establish a western style open access library to support the aims of The VAT Project as set

out in the Project Design Document, through the provision of high quality learning and teaching opportunities.

The VAT Project is housed in a refurbished four-story building with 12 classrooms, staff offices and library on the campus of the Hanoi University of Foreign Studies. Up to 60 Vietnamese and Australian teachers supported by two teacher librarians, six librarians and two computer network technicians work together to deliver training activities. The Library facilitates quality training by providing access to digital and non-digital resources and learning activities for both trainers and students. The principal English Language Training activities are Teacher In-service Education (TIE), Pre-departure Training for applicants to Australian Development Scholarships (P-DTP), and English for Specific Purposes. The principal Technical Training activities, which are delivered in English with simultaneous translations into Vietnamese, by short term Australian consultants, are: International Law, Training of the Trainer, Solid Waste Management, Urban Management, Negotiation Skills and Rural Project Management.

When I arrived there had been set up, a library space, housing various language teaching and learning materials and staffed by three Vietnamese trained librarians, one of who was nominated to act as the library coordinator. It was envisaged that this coordinator would act in a “counterpart” capacity to me. In the management structure of the project prior to my arrival, the Vietnamese library coordinator was reporting to the coordinator of the Pre-departure Training Program.

There was a relatively rich diversity of teaching and learning materials available but the teaching staff were expressing a degree of frustration, as what they saw in the space housing the materials met their expectations of what a library should look like (Electronic catalogue/Dewey/ borrowing system) but they felt that their teaching needs and the learning needs of their students were not being met. They had all the physical ingredients needed to make an open access library work. What was lacking was the overlay of experience in operating a library that could meet the needs of the teaching programmes. There was the need for the insights, understandings and experience of a teacher librarian so that the library could actually service the teaching and learning needs of the Project community.

The primary focus for most of the teachers at this stage was the student's linguistic needs. Most teachers were aware of the deficit of experience in using and accessing information that students had but did not have a coherent methodology for developing the students' information handling skills. Many teachers also felt that they did not have the time. The teachers were experiencing difficulties in determining how students could be taught the information handling skills. The teachers experienced intense frustration on taking students on library orientation tours and watching as these new students wandered off to explore something they had seen, chatted in small groups, or looked on with glazed eyes as the mysteries of the open-access library were being explained. They were clearly easily distracted and were taking in very little of what they had been told. On reflection it seems that the teacher's methods in developing students' information skills fitted into two categories.

The first category was the “throw ‘em in at the deep end” method. The students were given assignments (or tasks) and the teachers hoped that by doing the tasks or assignments the students learnt how to use the Library. As the students moved towards the Library with trepidation the teachers went to the staff room, lamenting the fact that the learners were probably not going to do their task well. Little explicit instruction was given in how to use the

Library, either because the teacher felt that it wasn't their role, or that there wasn't enough time to do so. Whatever the reason, an essential aspect of the process of preparing to work in the new academic environment went largely unlearned. There may have been some critical evaluation of how effectively the students had used the Library at the end of the assignment, but, by and large, teachers gave little time to remedial work on how to use the Library because "there wasn't enough time in such a busy program".

The second method of developing information skills was the discreet item approach. In this method, the ability to access information was taught as a stand-alone skill. The teacher devised activities or assignments, the sole purpose of which was to teach the students information skills. While this approach is clearly better than the "throw 'em in at the deep end" approach, it too has serious shortfalls. First of all, the students invariably found these kinds of tasks incredibly boring, and this was reflected both in the attitude with which they approached the tasks, and the learning outcomes. Because it was boring they tended to recall very little of it. Secondly, because the skills were taught as discreet items, students often failed to see the relevance of the skills to their learning needs. Thirdly they were frustrated by the focus on seemingly trivial and irrelevant tasks.

This failure to see the relevance of the skills tended to result in students failing to recall or employ the information skills they had been taught in the performance of their work or assignments. Another problem was that there was no integration of these skills into the curriculum of the program as a whole. The students approached information skills as an optional extra to the program, one that could be dropped, or skipped over when the pressure of getting assignments done or preparing for exams hit them.

The model of education that was the only educational reference for the students further complicated these issues. The Vietnamese education system has been one designed to teach people to do things the one right way as defined by the authority figure. Where students are taught to recite what is heard or read without critically interacting with the information as it moves in and out of short-term memory. In this type of exchange the information leaves no tracks, and independent thinking skills are not nurtured let alone developed.

A very different model of education to that we are familiar with in the west? Not really.

Current western educational systems predominantly evolved to produce workers for the Industrial Revolution's factory – based economy, for work that requires patience, docility, and the ability to endure boredom. Students learned to sit in orderly rows, to absorb facts by rote, and to move as a group through the material regardless of individual learning differences. Where are the differences? Just a different stage of development.

In theory we accept as a given that learning is not about acquiring information but:

- thinking
- understanding
- knowledge
- wisdom

How ingrained in our thinking is the right answer approach?

By the time the average person finishes university they will have taken over 2,600 tests, quizzes and exams. The right answer approach becomes ingrained in our thinking. This

may be fine for some mathematical problems where there is only one right answer. The difficulty is that most of life doesn't present itself in this way. Life is ambiguous; there are many right answers – all depending on what you are looking for. But if you think that there is only one right answer, then you will stop looking as soon as you find one.

Vietnam is the flavour of moment in the global economic community. It has a vast source of cheap semi-skilled labour. But as a nation they are aware of issues such as "How many factory jobs will be left in 2019"? Except for a few technicians to watch over the control panels, tomorrow's factories will be automatic, with computers directing robot workers. In the west the market place now requires a different style of product. They require workers with initiative and who are willing to be life long learners. Vietnam is aware of this and is endeavouring to leapfrog the development process in order to successfully equip their workforce to meet these demands. It is attempting to ensure that they have the opportunity to develop the key intellectual skills of

- thinking analytically,
- making judgements,
- reasoning quantitatively, and
- balancing opposed points of view.

This they are planning to achieve through the provision of high quality learning opportunities and university libraries are recognised as being a key component of such a strategy.

It is generally understood that as educators we are no longer able to guarantee student mastery of content and that we must focus on the process of how to learn and how to think. It is the role of the teacher librarian to help students master the process of appropriate information retrieval and use. The world economy that our students are inheriting is one where excellent information skills are essential if they are to succeed. These skills are not used in isolation from each other, nor are they used in isolation by discipline. They build from individual actions to personal decision-making to social interaction and philosophy.

The learning environment that is required to support such a learning organisation is where all members cultivate their innate desire to learn. The organisation relinquishes its role as a delivery system for discreet and often fragmented bits of data packaged in the guise of curriculum. They learn how to create processes that encourage the continuous improvement of one's abilities, the expansions of one's interests and the growth of one's character. Such an education is good for the individual student, good for the economy, and good for ... society (Bostingl 1992, p. 67).

In this world of increasing diversity and global interconnections we need to be as comfortable with answers from people who live halfway around the world as we are with the opinions of friends and neighbours. The "one right answer" concept just isn't appropriate anymore. Dichotomistic, product-orientated modes of thought and behaviour do not fit the needs of the global village, which must be viewed, as one unified system of diverse people and processes.

What is needed in educational institutions is students working alongside their teachers who are process orientated, replacing the old product orientated paradigm of teaching and testing. A learning organisation where teachers and students take time to figure out how they did their work together and how their collective and individual efforts might be fine-tuned to maximise success and optimise collective and individual learning processes. Quality learning comes from quality processes.

One small part of that organisation is the classroom/faculty teacher and the teacher librarian working collaboratively to design and teach learning programs where the emphasis is on the nature of the learning process and the creation of knowledge rather than the methods of instruction to transfer information.

At the VAT Project we have undertaken to ensure that students leave programs with information skills that equip them to deal with and make sense of information for which they may not have an immediate need, as well as the skills of articulating an information need, and seeking out and evaluating information to meet a need. We attempt to do in three to nine months what is done in primary and secondary schools over a period of twelve years.

Learning to learn requires that learners acquire the ability to identify their own learning needs, formulate learning objectives, locate and identify appropriate resources and strategies to accomplish objectives, carry out the planned learning and evaluate learning outcomes. (Eisenberg and Berkowitz) These outcomes are paramount for all learners and an essential component of lifelong education.....learning to learn suggests that all learners begin to question the habitual givens about their thoughts, values, attitudes, and knowledge and become critically reflective thinkers (Galbraith, 1995).

As students learn new skills and attitudes, they must be given ample opportunity to practice the skills in controlled and safe environments until a significant degree of confidence and executive control has been achieved. "Executive Control" refers to students learning how to learn and the acquiring of new strategies as they practice them in real learning situations. Through a blend of immersion and continuous guided reflection in real learning situations the process of learning to learn is given the chance to take root. The challenge to the educator is to provide a program that allows for the proper matches between learners and experiences.

The VAT Project is housed on the campus of the Hanoi University of Foreign Studies. This university like most in Vietnam is attempting to come to terms with changing perceptions of how the tertiary sector should service their client communities.

There have been dramatic changes in the culture and the economy of Vietnam since the introduction of Doi Moi in 1986 and the 2001 trade agreement with the US have resulted in a focussing by government and educational institutions on the pivotal relationship between libraries and education.

Vietnam News Headline 22nd March 2000:

Deputy PM Briefed on knowledge-based growth

Senior World Bank Officials yesterday discussed with the Deputy Prime Minister Pham Gia Khiem ways to tackle challenges posed by the emerging global economy. They talked with Khiem about a national conference on *Knowledge and Development* planned to be held in the country in July.....Khiem was briefed on how developing countries could effectively take advantage of the global revolution in information and communication technologies to accelerate development.

A particular example of this focus has been a World Bank Higher Education initiative in Vietnam where millions of dollars US have been allocated to the tertiary sector for the provision of library facilities.

The Hanoi University of Foreign Studies (HUFS) in the last quarter of 2001 received funding from the World Bank Higher Education Funding Project to build and stock a new library on their campus. The Rector of HUFS approached the VAT Project with a request to provide training for their university library staff. This request was made in view of the university being the host institution for the Project and his having watched the development of the VAT Centre Library. He has been impressed by the collaborative teaching model that he sees in action and the way that The VAT Centre Library teacher librarians manage the centre. More importantly, he was able to make the connection with what would be needed in order for Vietnam to create libraries that could function as effective open access facilities. Library staff that possessed attitudinal characteristics of service and the necessary professional expertise to develop the capacity of users to become information literate. He wanted to see the same model of library services for his new facility recognising that what he was asking for meant creating a whole new set of behavioural characteristic for Vietnamese librarians.

The challenge has been accepted and the developmental strategies that have been subsequently devised for HUFS are based on the four years of experience of working with the students and the bicultural teaching dyads of the VAT Project.

A key component of the training strategy for the library personnel has been the identification and provision of opportunities for the Hanoi University of Foreign Studies Library staff to come to understand the new requirements of their work as librarians in an open access library. When asked to attempt something new, we use our existing knowledge and tools of different kinds to close the gap between what we already know and what we need to know. Routine tasks are generally well defined. Responding to new or non-routine tasks requires conscious thought and is directly associated with new learning. To close gaps in our knowledge there must be models for how to proceed to aid the learning of new knowledge. It is planned that through the act of learning about "Open-access Library Management" the staff of the HUFS library will become active participants in the construction of their own knowledge.

It was recognised that the HUFS Librarians would need to revise their beliefs about the nature of University Librarianship.

They will be having to:

- Respond to new tasks, to
- Understand new concepts and
- Develop new procedures

All of which will make the work more demanding.

They will need to be able to adapt to new situations:

- How technology is applied,
- How the demands of changing work practice are manifested and
- Identifying the changing organization of work.

These changes can best be understood at the workplace level, where they manifest themselves in particular work practices.

However, like the US - Vietnam trade agreement the introduction of Western concepts of Librarianship can be seen as a challenge to prevailing Vietnamese cultural norms, a challenge that will need to be addressed on their terms in the Vietnamese context.

In principle, Vietnam has adopted a market style economy and since 1986 the pace of development and change has been hectic. However it has been a relatively uneven and selective development. Within the library community this uneven nature of the development is reflected in issues such as the generally accepted understanding of the need to implement western styles of managing resources if libraries are to become open access facilities, coupled with the perceived threat to the status quo that such a move unleashes.

A particular example is the adoption of the Dewey system and notions of quality client service. These notions are culturally challenging and problematic for Vietnam. The Vietnamese language sustains a rigid form of hierarchical interpersonal relationships. The concept of service quality, which is a widely accepted notion in western librarianship, is a difficult concept for Vietnamese to put into practice. Serving others can be seen as placing one low in the social hierarchy. It is happening but it is a difficult path for Vietnamese librarians to tread. Vietnam's reading of politics and history is very different to the US centric version presented in Dewey.

"Minor" issues on a global scale but capable of disempowering Vietnamese librarians who are charged with delivering services to their learning communities. Learning communities that are developing very western expectations of library services.

Jurgen Habermas's social theory portrays human relations as dialectics, that is, a constant give and take between individuals and groups. All power relations in our society involve control and resistance. One strategy that can be used to resist hegemony is by groups telling their own stories of the way they believe things are. Resistance is an intelligent response and the Vietnamese praxis will be effective only if the players in this praxis of change are given the opportunity to tell and share their stories in their own words.

Nguyen Hong Chung
Teacher Librarian
VAT Centre Library

Understandings Developed through Working as a Teacher Librarian the VAT Project through 1999 - 2002

August 1999, back from Australia after one year and a half of undertaking a Masters degree in the Teaching of English to Speakers of Other Languages, my mind was fresh and my spirits were high. I had my regular work at the Vietnam National University where I was a lecturer in the English department, but I had I set myself the immediate goal of looking for further employment opportunities in order to apply the knowledge and skills that I had so recently acquired.

I applied for a position as a teacher of English at the Vietnam Australia Training Project and then found out that the position had become redundant in the event of student numbers being cut. I was subsequently invited to apply for a position as a teacher librarian working in partnership with an Australian teacher librarian in a modern open access library.

My appointment was to replace a librarian who had previously worked in the capacity of library coordinator. However, my predecessor did not have the teaching qualifications or the teaching experience deemed essential to best fulfil her roles and responsibilities and was therefore no longer required.

However, looking for a teacher librarian in Vietnam is like “trying to conjure water out of the desert”. In fact, it is no exaggeration at all to say that there are no teacher librarians in Vietnam. That is up to now, as I am more than half way becoming the first one. Teacher librarianship is a totally new concept and the title might even cause a look of confusion to appear upon the faces of several lecturers in librarianship or university library managers across the country. Before my appointment, the Project could not find a qualified person who both had library and teaching degrees. It was then decided that the best strategy was to recruit a teacher and then provide on-the-job training in librarianship.

The next hurdle to be negotiated was to find a teacher who was willing to work as a library professional, almost a mission impossible. Teachers in many ways are held in far higher esteem than their library colleagues. It is still true of today that teaching staff are better paid, and more respected in Vietnam. In fact, the common practice at educational institutions in Vietnam is that teachers who can no longer perform in the classroom due to limited capacity are often directed to work in “libraries”. The question now is why a young promising teacher like myself was willing to trade his status for a career that is regarded as both obscure and insecure and work as a teacher librarian.

To be honest, when I was offered the job, I said to myself I would try it for a trial period as an experiment. Once I became more and more involved in the work, I came to realise that it was indeed as interesting as any teaching job. Approximately three years have gone by and I have always considered it a truly rewarding experience full of challenges.

Perhaps the biggest challenge of all was trying to overcome the feeling of loss of status in the eyes of other Vietnamese university teachers. Taking part in meetings with classroom teachers was not easy and sometimes caused resentment. Having fewer contacts with students also mean that they value teacher librarians less than their “true” teachers in the

classroom. All these difficulties are psychological hurdles that I had to overcome on a daily basis.

The fact that librarianship was a completely new avenue was also very intimidating. It took me months to get a feel for the work and almost a year to build up enough confidence to perform effectively in the role.

There are numerous difficulties that are commonly shared with other teacher librarians around the world. One of the most intimidating tasks that I would like to mention has been the on-going "tug of war" between the classroom teachers and the teacher librarians over numerous education issues such as the research process models, whether information literacy should be incorporated in the curricula or should be taught by teachers in the classroom or co-taught by both teaching partners in the library, just to name a few.

How did I overcome these challenges?

Over the course of three years, I can now take great pride in saying that I have managed the job quite well. Problems and difficulties were inherent but were dealt with in the most effective manner. This success is first and foremost attributable to the staffing structure at the VAT Project.

In the terms of employment, I am considered as an academic staff member on equal footing with any other teachers in the project. Together with the library manager, I am a member of the management committee and thus participate in every decision making process. A great source of assistance comes daily from the library manager who has been at my side and with her experience and expertise; we have promoted the library's position well in all the education processes. On the more technical side of librarianship, I was helped a lot by the Project's generosity in funding me a distance education course in teacher librarianship with Charles Sturt University in Australia. With the staffing structure, the theoretical knowledge and the tutelage of the Australian teacher librarian, I have made a considerable contribution to realising the goals of the VAT Centre Library. The fact that year in year out, the library has won the nod from even the most cynical of teachers and students alike, tells it all.

Essentially what was achieved during this period can be summarised as follows:

Collaboration with the academic programs teachers

- Model of cultural dyads supporting each other in teacher librarianship: One local and one expatriate.
- Working in close partnership with teachers in planning weeks, throughout the course and in evaluation weeks in areas such as curriculum, delivery of information literacy skills, acquisition of resources.
- Working closely with students and providing services that they require giving consideration to quantity and quality. Positive feedback from students is paramount to the achievement of the library goals.
- Using management as a channel to inform staff of the mission, philosophy and the important roles it plays in the delivery of all programs at VAT.

Library advocacy

- Library as a key, integral component of the project in the design document
- Library teacher librarians are members of management committees (having a say in all decisions)
- Employing not only library degree holders for positions in the library but also teachers
- Networking with local professionals in exchange of information and experiences.

Phuong Minh Nguyet, Vu Bao Linh, Pham Thi Hue, Nguyen Duc Manh, and Pham Xuan Hoan

VAT Centre Librarians

A selection of comments from a focus discussion group where they reflected on their experiences working at the VAT Project Library:

Motivation to work in libraries in Vietnam is very low. There is no respect for the position of librarian or the work done.

Most of the staff working in libraries do not have library training and this demotivates the trained staff.

Most people think that being a librarian is a very “simple” job.

The librarians think that it is a lot of work to create an open access library and are not interested in doing the job. They are worried about students having access to the books as they might take (steal) them. Maybe the library will run out of books. They think that making an open access library means putting in a computer system, putting the books out and making sure that the books are not stolen cut up or put in the wrong place.

In the Vat Library the thing that makes our library work well is that we spend time training the participants when they come into the centre but in experience at university there was no help to learn how to use the library effectively.

In university the library is closed (access) not open we depend on the librarian but they only give us the rules and regulations...not how to find a book.

Training for users is really important.

The new DaNang University Library (a modern library facility built and resourced with overseas funding) is being used as a study hall for students because the librarians have not been trained. They sit back and wait for the students to ask a question.

When we are trained to be librarians we are not taught about how to work with the users.

For the first month that I came to work in the VAT Centre library I was so worried...It was all so new.

It was a flexible system where we worked as a team.

The way we think about libraries has changed since working at the VAT Project. We now know about meeting learner needs.

Changes in Libraries in Vietnam...we need new course materials new infrastructure in the universities that teach about how to become a librarian. When I came to work in the VAT library it was the first time that I had seen an open access library.

We need more training in English for Librarians so that we can take advantage of the many sources of information that are available digitally.

If you work in a library and are not familiar with the Internet you are way behind the library users.

Implications for Vietnamese librarians

- The need for English language training to be effective in the role as librarian
- The traditional custodial role of the librarian is deeply embedded and needs to be actively addressed
- The need to be aware of the snare of seeing the Internet as the answer to all information problems
- Need for the professionalization of the role of the librarian
- The provision of funding for new buildings and resources is only meeting a part of the need

Conclusion

Socrates realized 2000 years ago, knowing the right questions to ask brings one closer to wisdom than having all the answers. We don't have all the answers but we are learning a great deal by seeking out the right questions.

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Searching for Knowledge: Teaching Information Technology to Secondary Students

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Abstract

This paper discusses the importance of accurate knowledge to a knowledge-based society and presents the rationale, organization, and content of a short course in electronic search skills that enables students to retrieve accurate information by evaluating their searches, citations, and resources in a variety of databases. Focusing on the Seven Steps in the electronic search process, the course develops students' skills in thinking, computer literacy, and the ethical use of information. Students learn the concepts, process, and skills of information literacy and technology as they integrate the results of their searches into subject areas across the secondary curriculum. A syllabus and daily topics are included.

Although many administrators may have what Ken Haycock has called "technolust," information technologies can and should provide real and increased knowledge for students. These technologies, no matter how simple or sophisticated, are a means of storing and accessing the knowledge and resources that learners select and use to create new knowledge of their own. When new knowledge is publicly disseminated it becomes the knowledge of the society, which must be built on accurate knowledge that is cumulated. Libraries, especially those associated with educational institutions, play a vital role in collecting and disseminating knowledge. Indeed, they can be viewed as a repository of the documented knowledge and creativity of a society and a means of passing that achievement on to the next generation.

Knowledge, Missions, and Goals

A "knowledge society" is one that uses knowledge as a basic means of maintaining and improving itself. To do this, members of the society locate, select, evaluate, use, create, and communicate information and knowledge; and they use previously demonstrated and authoritative knowledge to build new knowledge. This process sounds very much like a definition of information skills, and educational institutions and their libraries do have important functions in developing and maintaining a knowledge society. *Information Power 1998* focuses on the contributions of school libraries and teacher-librarians to the development of student knowledge by providing instruction, quality library services, and effective program administration (AASL & AECT, 1998).

In order for students to contribute to their own learning and to a knowledge society, they must learn how to acquire and communicate knowledge by using current information technologies to obtain a variety of both print and electronic resources through library collections and access services. They must be efficient and effective, intelligent and critical

users of available software and resources, however, in order to realize the full learning potential of information technologies and to select the authoritative knowledge they need. One way for students to achieve these skills is through a short course in information technologies, or electronic searching, a course that contributes to the basic missions of schools.

Search Skills and School Goals

One of the major goals of schools is that students master the knowledge and processes deemed important. A short course in search skills contributes to this goal in three ways. A course in electronic searching

- helps deliver content knowledge in the subject areas, computer literacy, and information literacy,
- develops students' cognitive skills through use of the full range of thinking skills in Bloom's taxonomy, and
- reinforces the ethical use of information in terms of academic honesty and respect for copyrighted materials, foundation blocks of the academic tradition and a knowledge society.

There is now research data that validates the contribution of school libraries and librarians to student learning and knowledge. The results of a recent study of school library programs in three American states (Colorado, Alaska, and Pennsylvania) clearly indicate that "test scores [of elementary and secondary students] increased as library media specialists spent more time teaching cooperatively with classroom teachers [and] teaching information technology skills independently of classroom teachers" (Hamilton-Pennell et al., 2000, p. 45). The greatest increase in student scores occurred in grade 11. In addition

students scored higher on tests when there was an increase in total library media center staff per 100 students, size of the library media center collection ... , library media center operating expenses per student, [and] computers with access to library resources, databases, and the Internet (Hamilton-Pennell et al., 2000, p. 46).

The data analysis controlled for differences in the schools and communities by using multiple regression analysis. These studies indicate clearly that increased library collections and instruction result in improved student knowledge as measured on test scores. Earlier studies in Ohio and Colorado found a positive correlation between the funding of school libraries and student achievement (Brunning, 1994; Lance, 1994).

Teacher-Librarians as Instructors

Student use of a well-stocked library with instruction in information skills clearly furthers student learning and school missions. Why, however, should there be a course in electronic search skills, and why should the teacher-librarian teach it? First, not all students are comfortable on computers, and many of those who do rely on their own preferred methods. Quick and easy seems to be students' preferred search strategy: a keyword on a favorite search engine or in an online general encyclopedia. Students do not instinctively know how to search for academic resources, and even computer literate college students are not skilled and critical users of search engines (Levine, 1996; McCarthy et al., 1997; Woodard, 1996).

Second, programs, searching, and results are more numerous and complex than in the days of the card catalog and paper index, and in order to find the information they need

students need more sophisticated search and evaluation skills (Levine, 1996; McCarthy et al., 1997; Tenopir, 1998; Woodard, 1996). "Teachers and students, faced with the explosion of information technology, need guidance in accessing, evaluating, and using information in an effective and ethical way" (Harada & Donham, 1998, p.15). Teacher-librarians are best able to teach such a course because their professional education includes information technologies and the evaluation of information materials. They have the knowledge and skills to enable students to become intelligent and critical searchers who can find the golden nugget of knowledge in the increasing glut of resources and information available.

Third, educators and others have done such a good job of promoting the Internet as a source of information that neither teachers nor students may be aware of its limitations for academic use and of the existence of numerous academically valuable subscription databases. Research has shown that (a) many students use only those resources they are aware of and (b) an important function of the teacher-librarian is to expand that awareness to new and appropriate resources (Howe, 1997; Coupe, 1993; Levine, 1996; McCarthy et al., 1997; Woodard, 1996).

Fourth, a separate course in searching would give English and social studies teachers more time to focus on the knowledge content of their curricula. Students would learn more literature and history if teaching search and research skills were not part of those courses. Moreover, teacher-librarians, as specialists in resources, access, and bibliography, have the skills to teach a search course that includes not only the process but also the documentation of research.

Fifth, knowledge and skills that are important for students to learn and use are usually presented in an organized way in a separate course. This is the reason for all courses in the curriculum. Since information skills are necessary to a knowledge society, a separate course seems to be a reasonable way for students to learn these basic skills. At the college level, academic librarians have found that brief instruction sessions are not effective and point-of-use instruction is not a cost efficient use of the librarian's time (McCarthy et al., 1997). Moreover, all students should receive these skills at a given point in their program of study so that teachers may expect students to use them in subsequent courses. The disadvantage of integrating information skills into specific subject area courses at the secondary level is that it leads to some students who have had some exposure to basic information skills while others have had little or none at all. It is important that all students develop these skills, not just those whose teachers may bring them to the library for a resource-based learning project and let the teacher-librarian teach information skills (Howe, 1998).

Sixth, a separate course in research or search skills would emphasize that these skills are to be used for all research, not just a current assignment, and that students will be expected to use them in other courses. There is evidence that information skills learned during a specific project are not generalized for use at other times (Fox & Weston, 1993).

Finally, it is important to recognize the importance of knowledge in itself and how current technologies can both strengthen and undermine our knowledge. In Bloom's taxonomy of cognitive skills, Knowledge comes first, then Comprehension, Application, Analysis, Synthesis, and Evaluation (Bloom, 1956). There is a reason that knowledge comes first: accurate knowledge is the essential foundation upon which all the other thinking skills are based. In focusing on higher thinking skills, however, educators may have taken for granted the availability of accurate knowledge. In order to be successful, a knowledge society

must use, communicate, and build on accurate knowledge. Knowledge can be confidently accumulated only when authenticated knowledge is selected and accurately transmitted. Quality collection development and student search, retrieval, and evaluation skills are essential to the location and use of accurate knowledge.

Current technologies, however, facilitate access to both high and low quality knowledge and expedite both the vanity press and plagiarism. Publication and dissemination of unreliable information is the first step on the slippery slope of misinformation that can undermine a knowledge society. The second step is the use and further transmission of that misinformation. College faculty are very concerned about student use of the Internet and some have forbidden it (Leckie & Fullerton, 1999). When information of all levels of quality abounds and is accessible, it is all the more imperative that school libraries provide and promote the most authoritative and accurate resources and teach students to evaluate the resources they find beyond the school library collection and to select only the best.

Evaluation is possible, however, only when some knowledge already exists. Learners need to read authoritative resources before searching for and evaluating resources by themselves, and use of the school library collection plays an important role in developing this background knowledge. Evaluation of resources is a special skill developed and utilized by librarians, and they are therefore most qualified to teach this skill to others. In order to contribute to a knowledge society, teacher-librarians must perform the two essential roles of collection development and instruction in search and evaluation skills.

A short course may be the only way to achieve all these goals in secondary schools since there is often not adequate time to teach information skills to students when they come to the school library during a subject area class. Many secondary teacher-librarians have found that subject area teachers are reluctant to donate much time from the classes for information skills instruction, that they often prefer to have books delivered to the classroom or available on reserve, and that they may let students rely heavily on unevaluated websites. Consequently, secondary students may not get the practice they need searching, locating, and selecting academically appropriate resources.

Academic Librarians as Instructors

There is a similar lack of systematic instruction in search and research skills at the post-secondary level. Like high school teachers, college and university faculty have various and inconsistent approaches to information skills: they may present little or no instruction in their own classes, and they may or may not request that librarians provide some instruction for an assignment or library research project (Leckie & Fullerton, 1999). While some colleges have developed a course in research and search skills, it may or may not be required of all students (Bush & Wells, 1990; Clay et al., 1997; Martin, 1995; Ward & Raspa, 1998; Woodard, 1996). Academic librarians at other colleges have developed online tutorials for information skills (Clay et al., 1997). The advice for academic librarians is to be flexible and to meet the specific requests of faculty rather than develop a systematic program of instruction in information skills (Leckie & Fullerton, 1999).

In an age when both resource-based learning and the use of electronic resources is increasing, both secondary and post-secondary students are apparently not receiving the instruction they need to help them use information technologies effectively. All librarians K-16, however, have a role to play in creating an information literate populace (Gorman, 1995). Academic librarians and college faculty believe that their students should have some

information skills when they arrive on campus (George, 1988; Leckie & Fullerton, 1999; Levine, 1996). What should be the role of secondary school librarians, and how can they contribute the necessary skills to those who will work in a knowledge society?

Concepts, Process, and Skills

At the high school level, teacher-librarians can teach basic concepts, the research and search processes, and the specific skills of electronic searching that students can apply when using the available software. Such instruction should prepare students to use not only the resources in their school but also those they are likely to encounter in public and academic libraries, since our goal is that students become life-long learners and such instruction is less likely to be found in other libraries (Harris, 1992). Student knowledge of the concepts, process, and skills of information literacy is as important for those who do not go to college, and may not have further instruction, as for those who do go to colleges where instruction should build on what is learned in high school (Gorman, 1995; Levine, 1996). Transferability of skills is more likely when those skills are presented in a separate course within the context of general concepts that apply to other situations (Fox & Weston, 1993; Jacobson & Jacobson, 1993).

Teaching concepts to high school students is feasible because adolescents are in Piaget's abstract level of cognitive development (Elkind, 1994; Jacobson & Jacobson, 1993; Woolfolk & McCune-Nicolich, 1984). While integrating research skills into specific assignments may be more suitable for primary and elementary students, secondary students should be capable of understanding concepts and applying them both at the time of instruction and later. Concepts that can be presented and applied in an electronic search skills course include the structure and function of indexes and databases, the search process, the academic tradition, and the ethical use of information. These basic concepts lay a foundation for life-long learning and information literacy and should be made concrete through practical applications at the time of instruction (Jacobson & Jacobson, 1993).

Knowledge societies and current information technologies have made it essential for students to learn and practice the ethical use of information and the academic tradition. Since many students dread the formulation of citations and bibliographies, it is important for them to understand the reasons for documentation and the ethical use of information:

- to identify resources consulted for a project
- to give credit for information, ideas, and words from another source
- to assure credibility of the researcher and the project by demonstrating the accurate use of authoritative resources,
- to provide information about resources consulted in a standard comprehensible format so that others may identify and locate those resources, and
- to obey copyright law.

The rationale for and the process of documentation rely heavily upon the use of accurate and authoritative knowledge since it is the foundation for building further knowledge.

The Importance of Process

Documentation is an important step in the process of research, and the use of an appropriate model of the research process during resource-based learning projects ensures that this step is not omitted. There are several models of the research process that can be used for instruction (Eisenberg & Berkowitz, 1988; Harada & Tepe, 1998; Herring et al., 2000). The use of a research model has other benefits as well. Recent research has demonstrated that

use of the four-step PLUS model seems very effective at the middle school level in reducing plagiarism and generating more student knowledge of their topic. (Herring et al., 2000). Truett's research indicated that the use of a research model can counteract the observed increase in plagiarism and decrease in thought processes that result from increased use of technology (Bracy, 1996).

Just as using a model of the research process improves student learning and reduces their errors, using a process of electronic searching can improve searching for and selecting resources. Teaching students the steps in the search process provides a structure to searching that addresses bad search habits. Breaking down a procedure into its essential components helps prevent shortcuts and encourages the use of cognitive skills at each point in order to perform an intelligent and critical search.

I developed the following *Seven Steps* in the process of electronic searching in response to problems that students encountered as they searched, and I used them for five years in teaching a course in electronic search skills to ninth grade students:

- *Step 1: Select a research topic and generate related search terms*
- *Step 2: Select a database appropriate for the topic and type of resource needed*
- *Step 3: Develop search strategies and statements*
- *Step 4: Retrieve and evaluate the results of the search*
- *Step 5: Modify the search to improve the results*
- *Step 6: Evaluate and select the citations of resources to be consulted*
- *Step 7: Cite and evaluate the resources consulted*

Using these *Seven Steps* in the search process will require students to develop their knowledge of both their topic and the available resources, to use higher order thinking skills, and to utilize a variety of search strategies and statements in order to retrieve the most appropriate resources and information for their topic. Academic librarians have found that college students also need help with these aspects of electronic searching (Levine, 1996; McCarthy et al., 1997; Woodard, 1996).

While the resources and interfaces may change with the topic and times, this search process is likely to remain the same and can be applied to any topic. Moreover, the *Seven Steps* can be integrated into the more encompassing steps of the research process, which culminate in creating a product with new knowledge. While step one in both the search and research processes involves defining a topic of inquiry, search *Steps 2 – 7* are really an expansion of the next steps in research, identifying and locating the resources.

Information Skills In and Beyond High School

Another benefit of teaching electronic search skills centered around the process of searching is that such instruction builds knowledge of the general information skills needed by students in both high school and college:

- the ability to select and focus a topic,
- an awareness of the variety of library resources and services,
- a knowledge of the goals and structure of a classification system,
- comfort in asking questions in a library,
- a knowledge of the various indexes and their access points,
- correct use of search strategies and statements, including subject headings
- the ability to distinguish between book and journal citations, and
- the ability to locate and evaluate materials.

Research by academic librarians has shown that college students often lack these basic skills and request both help with and more training in electronic searching (Allen, 1990; Bush & Wells, 1990; Clay et al., 1997; Coupe, 1993; Dunn, 2002; Fox & Weston, 1993; George 1988; Greer, Weston, & Alm, 1991; Kenny & Schroeder, 1992; Leckie & Fullerton, 1999; Levine, 1996; McCarthy et al., 1997; Nash & Wilson, 1991; Scott et al., 1995; Woodard, 1996).

Colleges and universities, as well as their librarians and the Association of College and Research Libraries, do recognize the importance of information literacy and competency skills for their students (Clay et al., 1997; Dunn, 2002). The California State University (CSU) system, which serves 370,000 students on 23 campuses, recently undertook a major study of their students' information skills because it identified "information competency as an action item and a critical skill for all students," one that will provide them with the tools to succeed in a "global and knowledge-based economy" (Dunn, 2002, 26). While college faculty generally believe that students should know how to do library research, they nonetheless observe that incoming college students have poor information skills (Leckie & Fullerton, 1999).

High school teachers and librarians therefore have an important role to play in preparing their students for resource-based learning at the post-secondary level. The high school library is a place where students can learn information concepts and skills and gain experience in using library resources so that they can more easily use public and academic libraries after graduation (Levine, 1996). Students taking a short course in electronic searching can learn these information skills by applying the process, concepts, and search skills on the software and resources available in the school library.

Planning, Teaching, and Assessment

There are some basic considerations in developing a course. First, teach search skills to students the first year they are in a building in order to facilitate student awareness of library resources and to prevent the bad search habits that can develop when use precedes instruction. Second, students should have their own workstations so that they have multiple opportunities for searching the variety of databases available. Multiple sessions and databases are needed for students to master skills. Third, provide daily hands-on applications of the concepts and *Steps* after a demonstration. Academic librarians have recommended these guidelines for use at the college level as well (Leckie & Fullerton, 1999; Levine, 1996; McCarthy et al., 1997; Woodard, 1996).

Teacher-librarians should ensure that students develop and use the full range of Bloom's cognitive skills when searching rather than just doing the easiest or quickest search using one keyword. They should also ensure that students learn the variety of available resources by having them use at least one of each of the basic genre: catalogs, periodical indexes or full-text databases, and search engines on the Internet for books, articles, and web sites. While students do learn some of the mechanics of specific software during use, it should not be assumed that the efficient and effective use of information software is intuitively obvious. Although using the *Seven Steps* will help students to learn to use the interfaces effectively, it would not be wise to focus instruction on the mechanics of specific software since they will likely change soon anyway. It is better to focus instruction on what is more permanent: the concepts, process, and skills of electronic searching (Woodard, 1996). Finally, teacher-librarians should integrate the product of searching, an annotated

bibliography or research report, into courses across the curriculum by having students select a research topic from one of their current courses.

A syllabus prioritizes what is important for students to learn and organizes instruction meaningfully. The goal of the course is for students to develop both the conceptual framework and the specific skills needed to search effectively the on-line catalog, full-text databases, and Internet resources available in the school library. At the end of the course described below, students will be able to

- abide by the principles of the ethical use of information,
- understand the structure and functions of indexes, access points, and databases,
- follow steps in the search and research processes,
- search indexes, catalogs, databases, and the Internet for resources and locate information in periodicals, books, full-text databases, and web sites,
- prepare an annotated bibliography of the resources consulted, and
- apply electronic search skills to other courses and libraries (Bolby et al., 1999).

A workbook gives students an outline of the course content and provides them with a worksheet to record search statements and results for each *Step*. To encourage critical thinking, each workbook page should have a reflection that is an open-ended evaluative question on the work done that day. Sample workbook pages for electronic searching may be found on the American Association of School Librarians website (www.ala.org/aasl/kqweb).

Assessment is based on two packets of materials submitted by the students. The *Search Report* contains the workbook pages for the daily searches and reflections, a review or test, and printouts of search results or citation lists (Bolby et al., 1999). It is graded on the quality of the search terms and search statements, the relevance of the citations printed from the hit lists, reflections, and performance on a written review or test.

The *Research Report* contains the workbook pages for the annotated bibliography or research paper, notes from a book, a reflection on what students learned about searching and their topic, and full-text copies of articles and a website selected for reading (Bolby et al., 1999). It is graded on the quality and relevance of the resources selected for reading, the correctness of bibliographic format, the completeness of the notes and annotations, and the reflection. The teacher-librarian may forward the *Research Report* to the teacher of the course related to the research topic.

Schedule of Topics

The following schedule organizes the *Seven Steps* into daily topics and assignments.

Topic/Day 1: Organization of the Course and Information Concepts

- Logistics and expectations of the course
- Information concepts: index, access points, database
- *The Seven Steps* in the electronic search process
- Ethical use of information: citing sources and abiding by copyright law

Step 1: Select a research topic and generate related search terms. After students select a research topic related to one of their courses, they should generate a variety of related search terms, including synonyms and narrower and broader terms. Check for relevance and comprehension by having students share their topics and related terms with the whole class.

Topic/Day 2: Select a Database and Develop Search Strategies and Statements

Step 2: Select a database appropriate for the topic and the type of resource needed. The teacher-librarian should select a database that is appropriate for teaching each *Step* in the process. By the end of the course, however, students will have used a variety of databases and can select the ones they need in subsequent courses.

Step 3: Develop search strategies and statements. If students are to be intelligent and critical searchers, it is essential that they know the basic types of search strategies, how each operates, what kind of hits it will retrieve, and its advantages and disadvantages. The concepts to be introduced are the definitions and discussion of the subject heading and keyword search strategies. Use a database that clearly indicates these different types of search strategies. For example, *SIRS* has both a subject search and an advanced keyword search that allows separate keywords for the text, title and author fields. Many other databases (e.g., *EBSCO*, *A Matter of Fact*, and *ProQuest*) have similar capabilities.

After writing their search statements and yield in their workbooks, students should print the citations selected from their subject and keyword searches and write a reflection comparing the results. I have found that such reflections indicate that students often find keyword searches to be quicker and easier to generate but that subject searches often give a better yield with fewer more focused results.

Topic/Day 3: Evaluation and Modification of Search Statements to Improve Yield

Step 4: Retrieve and evaluate the results of the search. Prior use of the Internet has led most students to realize that more hits are not necessarily better. Now they will learn two ways of evaluating their searches that focus on the number of relevant hits (recall and the precision ratio). Students may calculate and compare the precision ratios of their keyword and subject searches in their workbook. Students should practice *Steps 4* and *5* on an index or database that includes summaries since summaries are a good indicator of relevance.

Step 5: Modify the search to improve the results. It is necessary to modify searches if there are no hits, too many hits, or too many irrelevant hits (a low precision ratio). Another goal is to manipulate the search to generate a manageable relevant yield: enough for a choice but not too many to evaluate (10-20 hits). Present the strategies for reducing and increasing yield with Boolean operators. Demonstrate with a few searches that broader subject headings will not necessarily retrieve more hits than narrower subject headings. After writing their statements and yields, students should print the results of their best searches as citation lists and indicate in their reflection the modification techniques they used to improve the results.

Topic/Day 4: Evaluation and Selection of Periodical Citations

Step 6: Evaluate citations and select resources to be consulted. Evaluating periodical citations is the key to selecting the best articles on the topic. Link the standard means of evaluating resources (authority, scope, depth, currency, relevance) to each part of the citation and its related field in the database (source, subject heading, pages, publication year, summary).

The software for *Step 6* should be an index with the above fields visible for easy comparison of the hits. Students should write the subject and keyword statements and yields in their workbooks, but they should select and print only those citations for resources available in the school library since they will read one of these articles for their annotated bibliography or research paper. They should then select one article to read from their results in *Step 6* and also one article from their results in *Step 3*. Their reflection should indicate the criteria used for selecting these two articles. Students may use the same or different software for *Step 6* as for *Steps 4 and 5*, but there should be three different searches since the goals in each *Step* are different.

Topic/Day 5: Searching Online Catalogs

Searching for books differs from searching for magazine articles. Broad subject headings should be used to find a book with a few pages of information on the topic, and reference books will usually have even broader subject headings. Students can use the various subject headings given for a title as an indicator of relevance as well as scope since there may not be summaries on catalog records. Students should do both subject and keyword searches and select one book to use for their bibliography or research paper. In their reflection students should indicate how searching for books differs from searching for periodical articles and what criteria they used for selecting a title on their topic.

Topic/Day 6: Locating and Using Resources in the Library Media Center

On this day students retrieve the book and two articles they selected as the best for their topic. In this way they learn how to locate, use (take notes), and return resources in the library, copy articles, and print full-text.

Topic/Day 7: Writing an Annotated Bibliography

Step 7: Cite and evaluate the resources consulted. Present or review the bibliographic format from the school's preferred style manual. Students should write, in their own words, a four-sentence summary of each resource that includes the main idea(s) and other interesting information on their topic. They may add an evaluative sentence to each annotated citation.

Topic/Day 8: Evaluation and Selection of Academically Valuable Internet Resources

After having selected and read authoritative print resources, students will be better prepared to search for, evaluate, and select an academically valuable Internet resource on their topic. Demonstrate the category and domain searches and distinguish them from subject and keyword searches. Discuss the structure and functioning of search engines and how they differ from indexes. Present the standard evaluation criteria for information resources: authority, scope, date, depth, treatment, and accuracy. Students should then complete a workbook page using these criteria to evaluate the Internet resource they selected.

Topic/Day 9: Review and Continued Reading and Writing

Students should take a brief written review or test that includes questions on the concepts, process, and skills of electronic searching. They can use the rest of the period to prepare their bibliography or research paper and write a reflection on what they learned about searching and their topic.

Topic/Day 10: Writing and Compiling the *Search Report* and *Research Report*

Students should use this class period to finish their workbook pages and annotated bibliography or research report. They should then assemble their workbook pages and citation printouts as the *Search Report*; they should assemble their annotated bibliography or research report and full-text copies of resources consulted as the *Research Report* (Howe, 2002).

Collaboration, Integration, and Enhanced Learning

Keith Curry Lance's studies of the correlation between library programs and student learning indicate that (a) student achievement is not dependent on demographics such as race or income level and (b) greater student learning occurs where teacher-librarians instruct students and there is collaboration between teacher-librarians and teachers (Hamilton-Pennell et al., 2000). While this paper advocates the instruction of search skills in a separate course rather than integrated into specific subject area courses at the secondary level, there are nonetheless two main avenues for collaboration and integration.

First, if instruction in electronic search skills is a unit of another course, it is important to discuss with the teacher of that course both the goals of the unit and its relationship to the teacher's course. Invite the teacher to sit in on the course and ask for his/her comments. In this way the teacher will see how the unit complements what he/she is doing, feel some understanding and ownership of the unit, and may promote its importance to students and other teachers. Discuss teaching strategies, student behavior, learning problems, and assessment with the teacher. While the teacher-librarian should grade the student's *Search* and *Research Reports*, these grades should be incorporated in the final grade for the teacher's course.

For example, if search skills are a unit in a computer science course, the teacher-librarian should make explicit the similarities and differences between information databases and other basic types of software, such as word processing and spread sheets, which the other teacher presents. If search skills are part of a research project for an English course, the teacher-librarian may present the process of searching while the English teacher presents the research and writing process. If search skills are incorporated in a whole course on research, teacher-librarians and English teachers can collaborate by team teaching the course, with the teacher-librarian taking responsibility for instruction in research and search skills and an English teacher taking responsibility for the writing of a research paper.

Collaboration and team teaching are highly individualistic processes in which each partner has goals and skills to contribute. The results of collaboration and team teaching depend on the amount of time allocated for the search unit and the other topics in the course, the desired skills for students to attain, and the strengths each partner brings to the project.

Second, requiring that students select a research topic that is related to current study in one of their other courses leads to collaboration with teachers in all subject areas. It also leads to increased student learning of course-related knowledge. Teacher-librarians should discuss ahead of time with each teacher the range of possible topics for a *Research Report* related to their course so that the teacher-librarian can help direct or limit students' choice of research topics on the first day. Teacher-librarians may also discuss the possibility of teachers grading or giving extra credit for the knowledge presented in the *Research Report*.

Conclusions

Searching for and selecting appropriate resources that provide accurate knowledge on a topic are essential skills for everyone entering a knowledge-based society, whether or not they go on to post-secondary education. Information technologies are available at home and in public libraries as well as school and academic libraries. School libraries and librarians, therefore, have an important role in imparting to all students the ethical and effective use of information technologies and resources. A course is the standard way of giving consistent instructional content to all students. Just as teaching students the process of research contributes to learning and helps prevent plagiarism, teaching students the process of searching is an important means to help learners search for and select the best relevant resources in the glut of information available. A short course in search skills can be integrated into existing courses in computer literacy, research, or English, and teacher-librarians can collaborate with teachers across the curriculum for possible research topics. Providing a firm foundation of information skills in high school through a short course in electronic searching will enable students to improve their use of resources in other libraries and become more skillful participants in a knowledge society.

Author's note: The section "Schedule of Topics" was previously published in Howe, E.B. (2000), *The Goals and Mechanics of Teaching a Short Course in Electronic Search Skills to High School Students*, *Knowledge Quest: Journal of the American Association of School Librarians*, 30(4), 38-41. Other sections of this paper are new and incorporate an updated review of the literature.

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Collaboratively Building Digital Libraries: Focus on Local Historical Resources for Educational Use

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Abstract

COREDEV (Collaborative Resource Development) is a proposed digital library for historical resources that supports the development of digital content collaboratively. A prototype biographical portal that could handle information on Malaysian personalities was chosen as the domain for the test-bed. The biographical portal incorporates five main basic features: (a) uploading, indexing, searching and retrieval modules supports the creation, capturing and sharing of historical data from distributed sites and user groups (This environment helps produce the desired outcome in terms of ICT literate teachers and students and provide the experience of creating or publishing in digital libraries); (b) supporting multi-format digital resources (text, images, audio and video clips); (c) providing a facility for searching the contents of the digital libraries from simple keyword searches, specific occurrences of words in specific fields and a combination of terms using Boolean operators; (d) providing user controlled display (user may choose search and retrieval screens either in Malay or English language, determine the number of results to be displayed (5, 10 or 20 records and browse thumbnail objects before zooming on specific details); (e) ensuring basic security features (authentication, registration of users and requirements of validation for all uploads by members before it is searchable through the Internet). Other information provided includes a brief introduction about the system, frequently asked questions (FAQ), terms and conditions for those interested in participating, help and edutainment features and linkages to other related resources.

Introduction

A digital library is defined as a library that contains material in digitized form or contains digital material (Noerr, 2000). Borgman, et al (1996) describes digital libraries as a set of electronic resources and associated technical capabilities for creating, searching and retrieving information. Digital libraries are an extension of information storage and retrieval systems that manipulate digital data in varied medium (text, sound, static or dynamic images) and exist in distributed networks. The content of digital libraries include data, metadata that describes the data and metadata that links to other data and metadata, whether internal or external to the digital library. Digital libraries may incorporate both retrospective digitized materials and materials that exist only in digital form. IBM DB2 Digital Library (1998)

proposes that any functional digital library should contain five main components. It should provide for creating and capturing materials (supporting an array of industry standard specification, able to define and import data in varied format, incorporate templates and authoring tools to help in the creation process). It should include an access and distribution module so that information can be distributed over public or private networks (this includes utilising network management software, which assists fast data delivery both text, image or real time audio and video). The digital library should provide the search and retrieval components so that the contents of stored objects can be searched effectively (keywords, Boolean searches and ranking relevant results). Another necessary component is the authentication and rights management module that control user access and protects library contents. Finally, digital libraries should incorporate the storage and digital objects management module that provides high-performance, scalable storage and efficient objects management. The proposed collaborative digital library of historical resources will incorporate the above components.

There are numerous examples of digital libraries of historical resources currently available on the World Wide Web (WWW) and this paper will highlight a few. A fine example is the American Memory of the Library of Congress (AMLC). This is a National Digital Library Programme initiated by the US government to digitize and deliver historical resources held at the Library of Congress. The resources include photographs, manuscripts, rare books, maps, recorded sound and moving pictures. This digital library contains over seven million digital items and covers more than 100 historical American collections. Another impressive initiative is the New York Public Library Digital Library Collection. This digital library provides digital versions of books, manuscripts, and engravings. The New Zealand Digital library project was the result of a research programme to develop the underlying technology for digital libraries and making it available publicly so that those interested could create their own collections. This digital library provides several types of materials, which includes historical documents, technical reports, bibliographies, literary works and magazines. It also includes non-roman script collections (Arabic and Chinese). Malaysia's national attempt at developing a digital library is exemplified by Mylibrary, which is a pilot project developed under the Malaysian National Digital Library initiative comprising partnerships between National Library of Malaysia, Multimedia Development Corporation, Telekom Malaysia, selected government and state public libraries. MyLib's digital collection is organized into seven categories, books, e-zines, newspapers, multimedia, conferences, maps and reports. This digital library does not in itself develop its own e-resources but create hyperlinks to other digital resources available on the Web (both Malaysian and foreign). MyLib is similar to the cooperative project reported by Carpenter (2000), where sixteen member libraries in Northeastern Wisconsin collaborate to publish an annotated listing with links to web sites and portals. COREDEV is the proposed digital library for historical resources that can be collaboratively used by educational and public institutions to develop digital resources. A description of the proposed systems architecture will be given in the next section. To ascertain the possibility of the proposal, a proto-type system was developed and a biographical portal of selected Malaysian personalities is chosen as the domain for the test bed.

It is clear that the way scholars, students and the public search and use information are changing. Highly improved ICT networks enables the digitization of resources and these situations have significant impact on the way teaching and learning are taking place as well as the way resources that support these situations are presented and organized. The value of digital resources subsequently, depends on the search and retrieval functions provided; the

quality and format of the content, the organization of information as well as the data management system.

Digital libraries contribute to current learning environment in a number of ways. It helps provide the means to collect, store and organize digital information. It is able to provide information whenever and wherever it is needed. It revolutionizes the traditional pedagogy of providing learning resources and the way resources can be accessed. It helps students to practice self-accessed and self-directed reference learning at their own pace. It changes the conventional process of seeking information. It changes the speed and spread of information obtained.

Why Collaborative Digital Library?

Individual institution looking for solutions to manage and preserve their non-book resources initiated most of the digital libraries mentioned previously. The move towards collaboratively building a union digital library is a fairly recent trend.

Bunker and Zick (1999) describe an example of a successful image management system collaboratively developed by the University of Washington Digital Libraries Initiative, which evolve as a result of collaboration between faculty members, engineers, students and librarians. The collaboration focuses on the creation, use, and investigation of electronic services, resources and systems. The outcome is an image archiving software called CONTENT. In this collaboration, users can learn to digitize and manage their visual resource collections as well as integrate them into their research and curriculum. The libraries uses SQL-based digital registry to which, meta data is mapped from innovative interfaces. The locally developed resources comprise unique holdings and primary resources of about 26,000 images from a theatrical photograph collection and this grew to include maps, guides, diaries, moving images, oral histories and diaries. Besides this, the library also provides access to commercial electronic indexing and abstracting databases, catalogues and web sites. This effort results in an increase in the use of unique resources, which would be otherwise be inaccessible and referenced. All this is possible due to collaboration between departments and divisions within the university such as the University libraries' Special collection, the University Archives and Manuscript Division, Henry Art Gallery, the University of Washington Press, Seattle's Museum of History and Industry and Eastern Washington State Historical Society. The Library of Congress and Ameritech is funding the University Libraries to digitize 2,500 images and 6,00 pages of text on the history and culture of the native people of the Pacific Northwest. The materials can be assessed through CONTENT and become part of LC's American Memory site. CONTENT is a client-server system with full text, provide concept based searching, storage and access to visual media. Objects found in the search are displayed as thumbnails, which can be viewed by clicking on each image. It has rich metadata support and uses an open web-based standard. It allows for distributed storage and cataloging, supporting multiple asynchronous database building so that archivists, librarians and scholars can collaborate to define rich and complex metadata. The software package consists of a server, which runs on NT or Linux, user clients in Visual Basic or Java, image acquisition and administrative tool.

Another collaboration in building digital libraries of historical resources is the Greater Cincinnati Memory Project, which was officially launched in June 2000 (Tull, 2002). It involved twelve members from all types of libraries in Greater Cincinnati including northern Kentucky. The focus of the project was building local history materials accessible through the

WWW. It began with the digitization of 6,000 pre-1940 photographs, slides and postcards relating to landmarks and events of local interests. Member libraries contribute all resources. Most member libraries were interested in digitizing their special collection but had no expertise or funds to undertake the project on their own. A consortium was established comprising an art museum, historical society library, public libraries, and university libraries. The initial project moved on an initial budget of US\$81,486.00 and the project team was structured to include:

- (a) Contents committee, which was responsible for selecting, handling and watermarking materials, deciding on the type of format to be given priority (postcards, slides, photographs), deciding on the type of contents which the format should have (buildings, structures, locations, landmarks, businesses, objects, and events), and deciding on the state of materials to be included (high quality).
- (b) Metadata/cataloguing committee, which was responsible for training cataloguers responsible for creating metadata for the images and describing the images using templates. The Dublin core standard was used to create the metadata.
- (c) Technology Committee, which was responsible for all hardware and software related issues. This committee is responsible for the purchase of a server to house the images, technical specifications to scan the materials, design the database.

Hedman (1999) pointed out that in the electronic world situation, anyone could be both an author and a publisher. This situation perpetuates the creation of communal resources in cooperation. The digital library houses the possibility of being both an information storage facility as well as tools for production. The existing entities allow for the dynamic generation of content. This enables the creation of digital libraries from grass root levels. Hedman views digital libraries as collectively constructed through networking infrastructures and can be used to construct communal repositories of knowledge resources. In the educational context, this type of collaborative venture brings about the achievement of a number learning objectives.

- Creation of content collaboratively – It allows students and teachers to cooperate in building their own multimedia digital libraries.
- Enhance IT literacy - It provides the possibility of learning through the very act of collaboration. Students sharpen their skills through publishing works in various format to be shared by others (Stahl, 2000) and using digital libraries on the Internet to learn about IT and Internet technologies at the same time. Students will learn about subjects they are studying through creating their own part of the digital library.
- Creative presentation of content – using multimedia elements (java applet, shockwave, dynamic HTML) allows for concepts to be visualized and portrayed in a variety of ways. The contents can also reside elsewhere but can be assessed through the WWW.

These objectives are similarly embedded into the proposal of COREDEV. Digital libraries of local historical resources that cater for the Malaysian learning community is lacking. As the test bed for COREDEV is in the domain of biographical portals, a brief search on the Internet indicates that short biographies are available and mainly provides information in plain HTML text. Some very good examples are The P.Ramlee Project (<http://www.farahaqil.com/download/audio/index.htm>); Story of Yap Ah Loy (<http://yapahloy.tripod.com/index1.htm>), Tun Hussein Oon (<http://www.eumno.net.my/news/tokoh/tunhussein.html>) and Leftenan Adnan (http://army.mod.gov.my/It_adnan/). Only the P.Ramlee site gives multimedia resources, comprising lyrics, movie as well as audio clips,

biodata, photograph images, and cartoon caricatures. The proposed biographical portal could support multimedia resources and provide searching and browsing facilities.

The Proposal

The proposed digital library (COREDEV) aims to provide an electronic system to help educators as well as students obtain information on local history; collect, store and organize information in digital format; publish and share electronic resources; learn how to use IT to obtain historical information. The digital library project conceptualizes the following objectives:

- (a) To develop a repository platform to preserve local history resources, and in this context, a test-bed for Malaysian biographical information;
- (b) To instill interests among educators, students and the general community on publishing historical information electronically;
- (c) To make local historical resources accessible through the Internet;
- (d) To develop an effective and efficient search system that can retrieve information from multi-format resources (textual data, graphics, images, audio and video files);
- (e) To develop template-based systems that makes indexing multimedia contents easy for resource managers;
- (f) To develop a relevancy ranking algorithm that could be utilized in query searches;
- (g) To create a user friendly and consistent interface;
- (h) To ensure authorized access to the management functions of the system; and
- (i) To encourage and strengthen collaboration and sharing of historical resources between partner members.

The Pilot Fact Finding

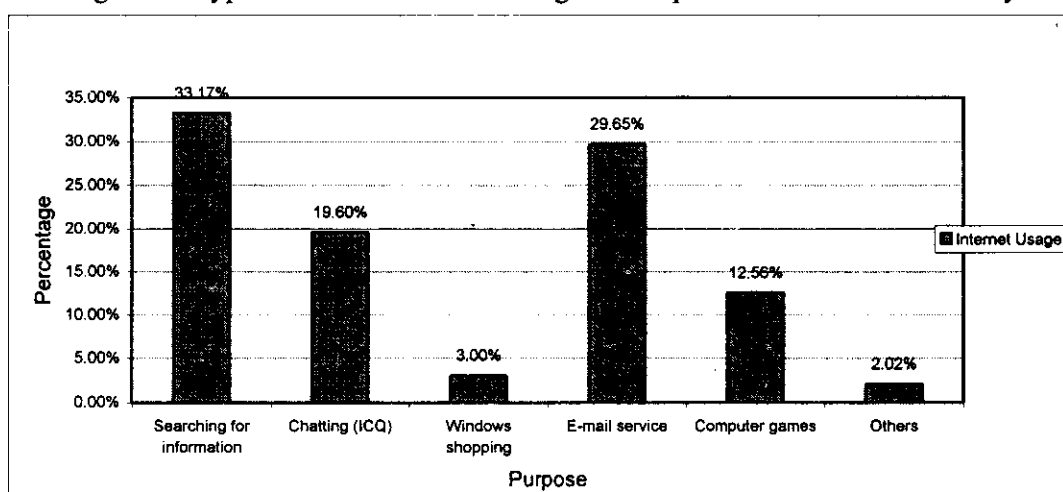
In order to ascertain the basic features needed for the system, a pilot survey was carried out as the preliminary fact finding process. Interviewing stakeholders of the system is considered the most effective method of ascertaining the system's requirements. In subsequent phases, the Soft System Approach would be used to study the needs of the system in greater detail. In the preliminary phase, interviews are conducted with two history teachers to gain information about the history project undertaken by all secondary three students, the need, requirements, functions, rules as well as expectations for the digital library. At the same time, a brief questionnaire comprising of 18 questions was distributed to 74 secondary three students. Both the teachers and students were from two selected schools, Klang Convent National Secondary School and the Victoria Institution. The schools are chosen because both provide Internet connections and the schools are situated near numerous cyber cafes, putting the stakeholders in an ICT rich environment. It is assumed that this community would have no problem accessing Internet resources.

The teachers interviewed saw the potential provided by a digital library in providing information to students, while researching for information for their project. The teachers expressed willingly to participate in the development of the proposed system. The teachers also indicated that most of the project report submitted would be thrown away and only the well-done reports are kept for student's reference. The reason for this is the lack of space to keep and maintain all the reports. History, as a subject in the Malaysian secondary school integrated curriculum, is compulsory for all students. The assessment in history comprises two components. The first is the MCQ-type (multiple choice questions) of assessment conducted centrally by the Ministry of Education. The second is the school-based history

project. Although projects are evaluated at the school level, the marks attained are submitted to the Malaysian Board of Examination. In secondary one, students are given the choice to either research on their family genealogy or their school history. In secondary two and three, the students are required to research on historical buildings, local administrators or historical figures (Sejarah MM1, 2001)

The main purpose of the pilot survey was to find answers to the following questions: How do students conduct research for their history project? This involves knowing the user community, understanding how they interact with systems, their changing needs, and their information seeking behavior. How did students gain access to comprehensive multimedia resources? What are the requirements of good digital repositories? What is required to build useful and enduring digital libraries? The first part contained four questions, which provided the demographic information about the respondents. The second part comprised 14 questions that aimed to ascertain student's level of computer and Internet literacy, the method used to gather information for history projects and the requirements for the proposed system. At this preliminary stage, the researchers' main aim was to ascertain students' general behavior when researching for their historical projects. All respondents in the sample indicated having used computers before and 89% had access to the Internet. The majority (56%) had Internet access from their homes, while others used the Internet from their schools (20%), cyber cafes (14%), friend's houses (9%) and others (1%). The students sampled were also frequent users of the Internet with more than 50% logging on between once to twice a week and 30% more than twice a week. The type of uses students make of the Internet is indicated in Figure 1. Generally, the three main uses of the Internet are to search for information, e-mail and to chat. A rich picture is indicated in Figure 2 to show the methods of gathering information among secondary three students when completing their history project. The library is still the most frequently used resource, which includes their school libraries, the state and national library. Students also surf the Internet and widely use search engines such as Yahoo and cari.com.my. About 11% of students indicate going to actual sites such as the museums, national archive and relevant municipal council offices to obtain information. Other methods such as visiting personality's home, distributing questionnaires, interviewing persons, reading magazines, books and using information given by friends are also used.

Figure 1: Types of Internet Use Among the Respondents in the Pilot Study

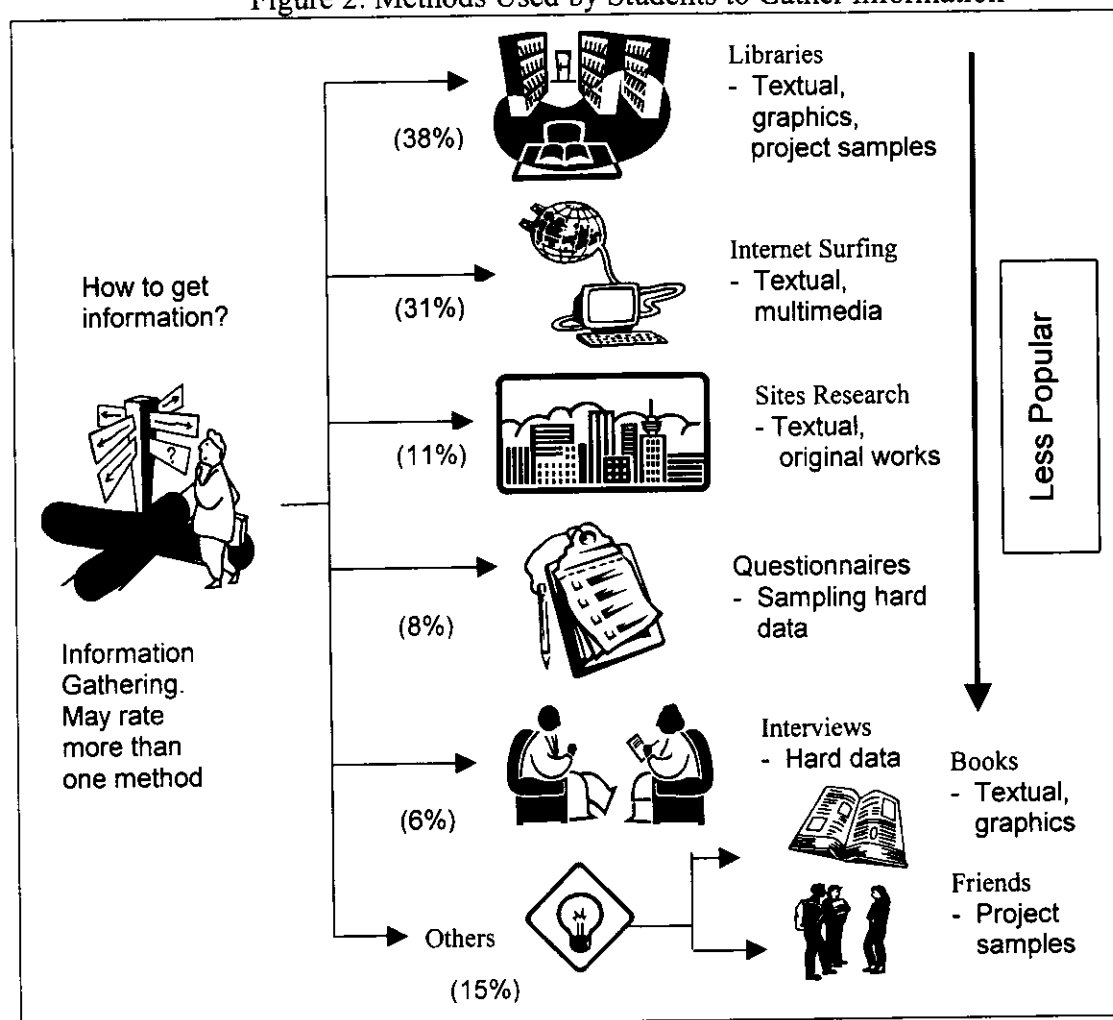


Students in the sample are versatile in their downloading skills of resources from the web. The most popular resources are photographs, charts as well as tables, audio and video files. Students also indicate the types of problems they face when searching for information,

which includes finding contradictory information from reference sources, insufficient reference sources available; not knowing what reference sources to use or which web sites give the needed information; spending too much time searching on the Internet and not finding enough information; difficulty in getting good quality images or photographs; getting too much irrelevant information and incurring high costs in terms of time and money when visiting the relevant sites for information. Over 90% of students feel that there is a need for digital libraries of local history information and this would definitely benefit them.

The students also volunteered suggestions as to the functions they would like to see in a digital library. They wanted historical information accompanied by good quality images; current information that is updated continuously; the information provided should be accurate, precise, useful and detailed; and information should be retrievable at a reasonably fast rate as well as searchable through variant keyword searches. Other preferred features are bilingual information; notes on history lessons taught in schools; opportunities to submit question or inquiries; and linkages to other local history web resources. This feedback helps to ascertain the main features required for the proposed historical portal.

Figure 2: Methods Used by Students to Gather Information



The availability of a web-based historical portal would become an important knowledge portal for data repository and searching for information. It helps students and teachers in a number of ways: (a) it saves valuable time for students who do not have the means to visit sites or locations for information searching or interviewing subjects; (b) it provides access to resources in various formats and allows revisiting or re-accessing

resources when some information is left out; (c) it promotes the sharing of original and excellent contributions from students (taped interviews with local personalities); (d) it exposes resource managers to the organization of digital resources; (e) it pools talent, vision and resources in the creation of new knowledge; and (f) it promotes awareness of the etiquette of acknowledging or referencing e-resources.

The content of the library is multi-format with the initial test-bed on a biographical portal that can subsequently include portals on historical buildings, sites and collections of historical value (Figure 3). The projected effect on information gathering behavior is indicated in Figure 4.

The System Functions

The functions proposed by the Malaysian Biographical Portal are given in Figure 5. The security of the system is integrated into the authentication module, which allows only authorized users to access certain administrative functions. The system also provides different access types for different level of users. Database administrators are allowed to access and modify database records, while users can only access and modify their own particulars. Another feature of the system is the enabled knowledge tools that provide value added functions to the portal. Each day the portal would introduce or feature a personality. This feature enables users to see the dynamic side of the portal since the main page of the portal would display a different personality everyday. This feature would also make users more aware of the many personalities that play important roles and does not only provide basic biographical information to users but also allow them to test their basic knowledge on biography related information. The guestbook provides visitors with the opportunity to input comments concerning the portals.

An important function is the indexing, search and retrieval module. These are interdependent features. Authorized systems administrators index digital collections to facilitate retrieval queries. The index function would create a set of keys or an index of terms so that searches can be performed. Textual data would be indexed in detailed metadata. The multimedia contents would be indexed according to their properties, which would include descriptions, categories and keywords. The content managers input these properties when an item is introduced to the database using templates that facilitate the indexing process. The search function that involves users submitting their enquiries using templates and the system searching the indexes or the database for keywords that match this enquiry. The textual data in the biographical portal can be searched through keywords matching and users could also browse the multimedia collections by keywords, location, year, alphabetical order and thumbnail images. All results are assigned relevancy scores based on a basic ranking algorithm (the TF-IDF, term frequency – inversed document frequency algorithm). This ranking algorithm is currently limited to textual searches only.

Figure 3: The Proposed Historical Portal (COREDEV)

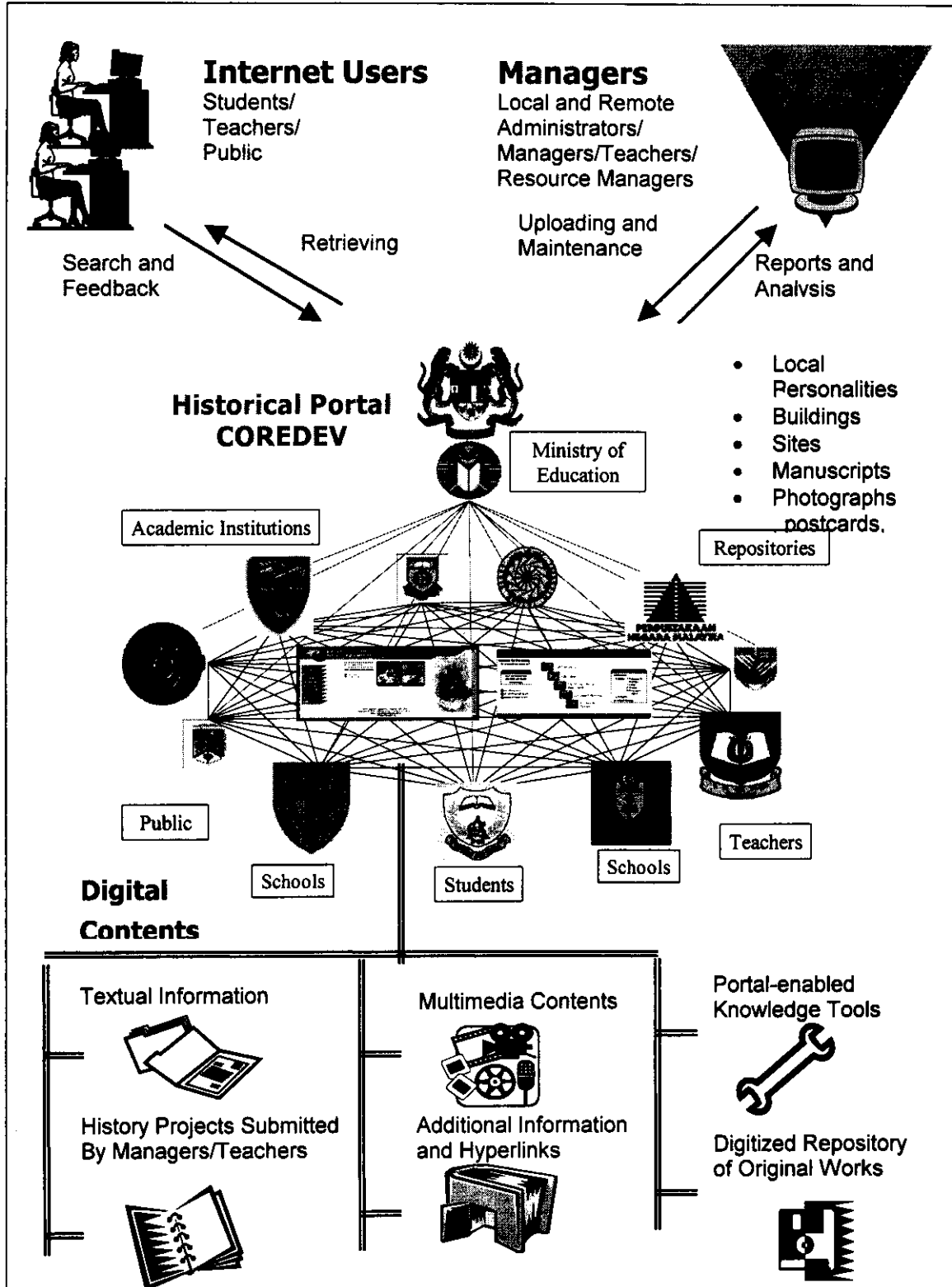
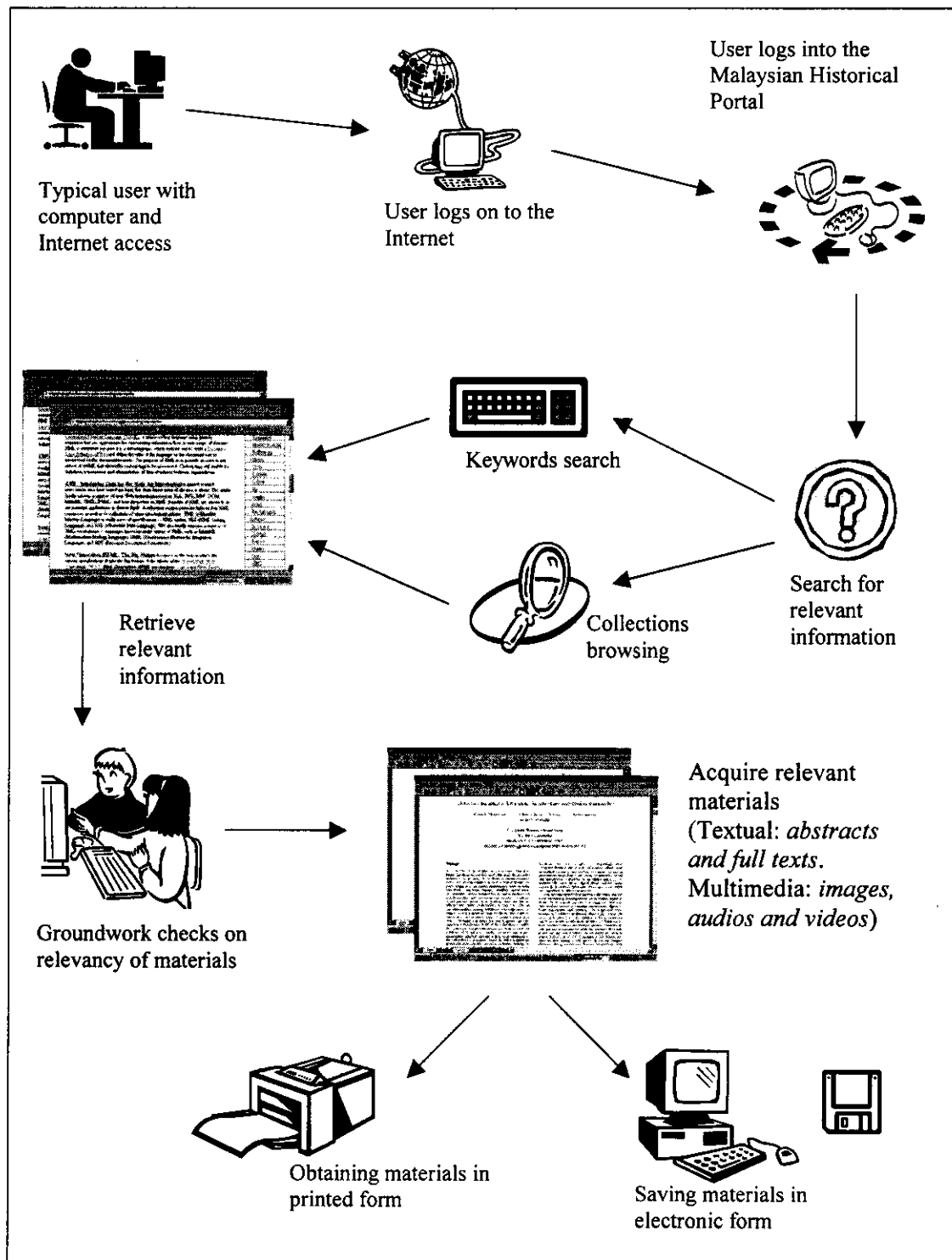


Figure 4: The Projected Information Gathering Behavior Using the Historical Portal



The main administrator's module provides data manipulation functions. This feature enables authorized users to submit or upload their collections and student's projects into the portal's database. It provides a mechanism to share and store resources, making these accessible to Internet users and encourages knowledge sharing. The data manipulation function allows users to view, modify and delete entries in the portal's database. The portal also provides guides and basic information to assist users to use the system effectively. This

comprises basic features such as search tips, help information, and giving users step-by-step procedures to perform certain tasks. Other information provided is a brief introduction about the system, frequently asked questions (FAQ), terms and conditions for those interested in participating and links to other related resources. The system is able to track those logging in into the dataset. These records would be used to produce statistical tables or reports for a certain period of time, whenever required.

The biographical portal is developed based on the three-tier client/server approach. The first tier is the client, which constitutes computers with Internet Explorer (4.0 or above) that provides user interface, and process users input and display outputs. The middle-tier runs on a server (referred to as the application server), comprising Internet Information Server 5.0 as the web server. All application or files will reside here. The web server processes the request from the client and returns the result required in web pages format. It will process any data request by linking to the database server. The third tier runs on a second server comprising the Microsoft SQL Server 7.0 as the database server that maintains the data records required by the middle tier. Every inquiry requested from the web server will be authenticated first before the results are returned to the web server. This architecture provides modularity as it is easier to modify one tier without affecting the other tiers, it increases performance when large number of users logs in and improves openness, reusability and scalability; and hides the complexity of distributed processing from users.

During this preliminary stage, the prototype was pilot tested in a school (Sekolah Menengah Taman SEA) in Petaling Jaya, Selangor. Two teachers viewed the system and gave their ratings to a list of 10 features rated on a 5-point scale of 1 (weak) to 5 (excellent) related to the design features. The design criteria includes features such as navigation, hyperlinks; colors, background images; download time; image or graphic arrangements; animation; text style; text color; overall color combinations; ease of reading contents; and overall display of the digital library. The teachers gave their opinion about the functionality of the system, its search functions, its help and information features, its contents, its usefulness as a resource for student's project and its effectiveness in motivating students to learn history. The teachers found no difficulties in answering the questions posed and this rating scale would be used for the systems testing on a larger scale in the second phase of this project. On the design features, both teachers and students rated seven out of the 10 features as good and generally understood the functions and purpose of the system and agreed that the system would benefit them. One drawback from the evaluation exercise is the lack of skills shown by the teachers in handling the computer and it is foreseen that human factors could be the main problem in the successful implementation of the collaborative digital library. Generally, the students show better adeptness in handling the system and rate the design features as either excellent or good. The students also generally agree that such a system would be a useful resource for the completion of their history project.

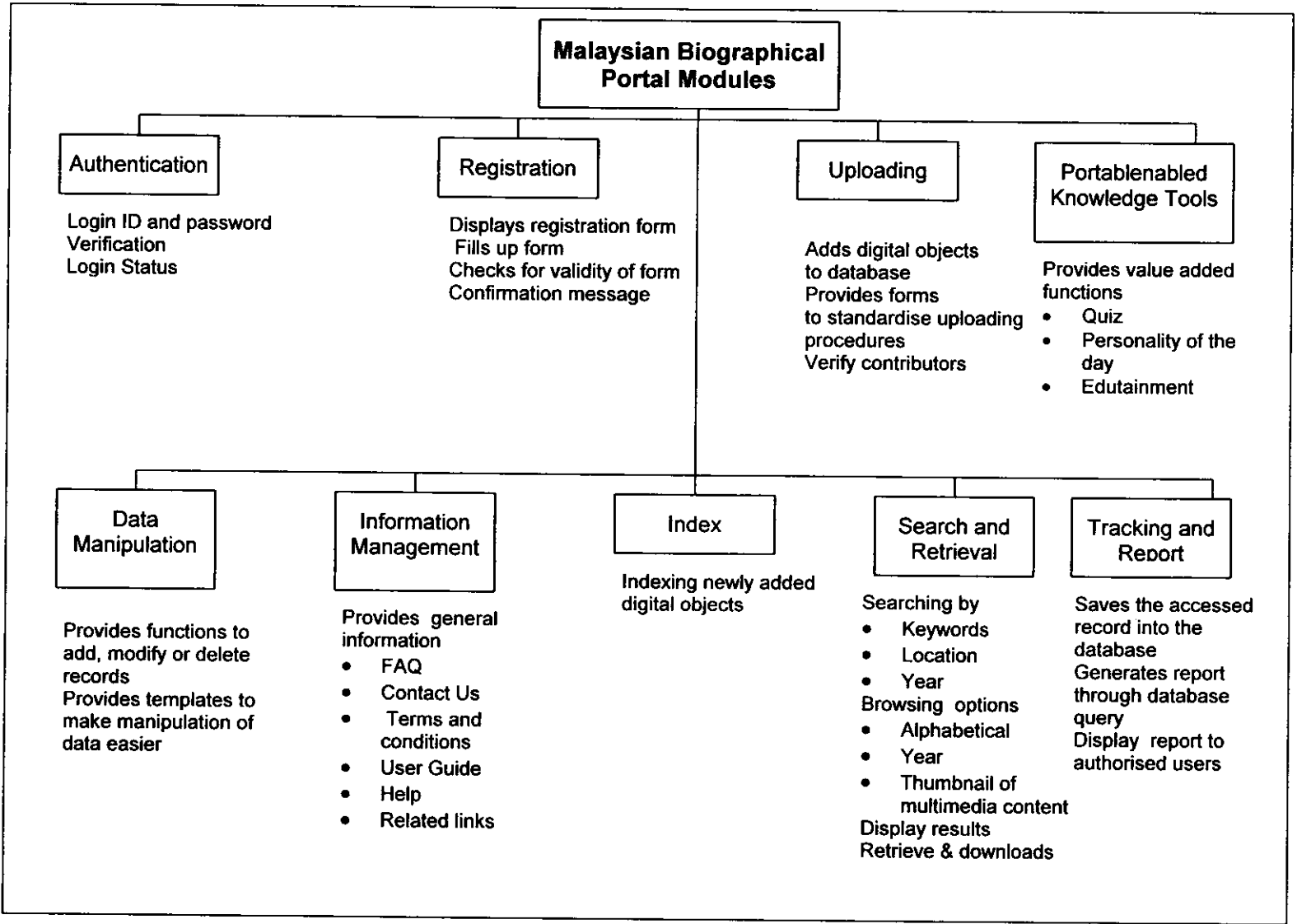


Figure 5: The Structure Chart of the Proposed Malaysian Biographical Portal

Conclusion

The process of developing COREDEV is both challenging and demanding. The biographical portal is the domain used as the test-bed towards the implementation of a fully integrated collaborative digital library of historical resources, which serves the needs of the Malaysian educational community. The portal emphasizes collaborative resource

development as well as knowledge sharing and such a system requires a robust and efficient retrieval system. There are very few local resources or similar systems in Malaysia that can be used as reference. As such, the functional development was mainly based on the literature read about such ventures abroad associated with the development of digital libraries and an understanding of the domain's environment within the Malaysian context. The interviews and the pilot surveys provide invaluable information about information gathering behavior and the community's perception of digital libraries.

The prototype portal incorporates the five main basic features proposed by IBM DB2 Digital Library (1998). The uploading, indexing, search and retrieval modules provides for creation, capturing and sharing data from distributed sites, supporting collaborative resource development between various user groups. This is the strength of the system as it encourages active participation, which would in the long run produce the desired outcome in terms of ICT literate teachers and students and the experience of creation or publishing in digital libraries. The ICT in this context is only the enabler to the creation of a content rich digital library. The system supports multi-format digital resources (text, images, audio and video clips) and therefore exposes the learning community to the unique features of digital libraries. The biographical portal also provides facilities for searching the contents of the digital libraries by processing simple keyword searches or specifying specific occurrences of words in specific fields to a combination of terms using Boolean operators. An extended feature is the provision of bilingual search and retrieval screens (Malay or English language). Users could also determine the number of records to be displayed in search result pages (5, 10 or 20 records). An added feature is the relevancy of information provided to users. Besides obtaining results based on submitted search queries, users could also browse the total contents of the library or by specific category of objects. Thumbnail images are displayed for browsing before users can zoom for specific detail of any objects. The Indexing module has incorporated a basic vocabulary of synonymous terms, to help resources managers assign indexing terms to specific resources. This list is not currently exhaustive and requires updating from time to time. In terms of access rights management, the portal allows uploads from any member but each upload requires validation from assigned resource managers before it is searchable through the Internet. Although, this feature ensures some quality control, the pressure put on resource managers to process uploads remains to be monitored. Besides these basic features, the biographical portal provides additional facilities such as general information, help and edutainment modules as well as the reporting module.

The biographical portal has tried to incorporate features expressed by the "keystone principles" proposed by the US College and Research Libraries Group (An action plan..., 2001) as an action plan for value-based digital library. The keystone principles expressed urgency in three areas that ensure and require user-centered actions. The principles were formulated for academic and research libraries, which has universal applications to all libraries. Within the context of adding value to digital libraries the following principles form the basis of its development.

- (a) It accepts the principle that access to information is a public good. As such information must be available free of bias and easily accessible so that the right to read and to know is not threatened. To realize this principle resources providers should collaborate to create local, state, national level resource and provide the means to create these resources. COREDEV caters for a collaborative environment that promotes the creation and sharing of resources.
- (b) It accepts the principle of access to bias free systems. This would enable partners to create, disseminate new formats of knowledge to support learning and share the cost of

creating information. To actualize this, partners should allocate a budget for the creation of digital information and new access systems. This would enable the libraries to assume its information management role.

- (c) Affirm the idea that the library is a nexus for learning and the sharing of knowledge. The stress is on improving the quality of learning situations, making use of IT as the enabler. In this context, the library is seen as the hub of the knowledge network. In order to actualize this, partnerships need to be formed and electronic spaces must be made available to create virtual environments that support research and learning activities.

The proposed digital library of historical resources is a system that provides for the interaction of data producers and users within a complex distributed system. It should provide for building collections collectively by member partners in three ways: creation of original digital works, digitization of paper-based resources and providing linkages to other relevant web sites. The biographical portal is the domain used as the test-bed in the first phase of the digital library project. To successfully implement the collaboration between partners, a number of problems need to be ironed out. The teachers involved need to be given training in publishing digital resources and the skill of indexing and validating the resources to ensure that the contents of the library can be efficiently retrieved. Both teachers and students must accept the reality that the richness in content of the digital library is dependent upon their active participation as partners. The outcome of this involvement is imparting ICT awareness and skills to the educational community. Another important skill needed is the ability to reference or cite resources used correctly. Subsequent phases of this digital library project will further investigate the requirements of users by applying the survey instruments to wider sample groups; expanding contents to include resources on historical buildings and sites; incorporating digital library history lessons, teaching tools, and examination questions bank on history for lower secondary schools.

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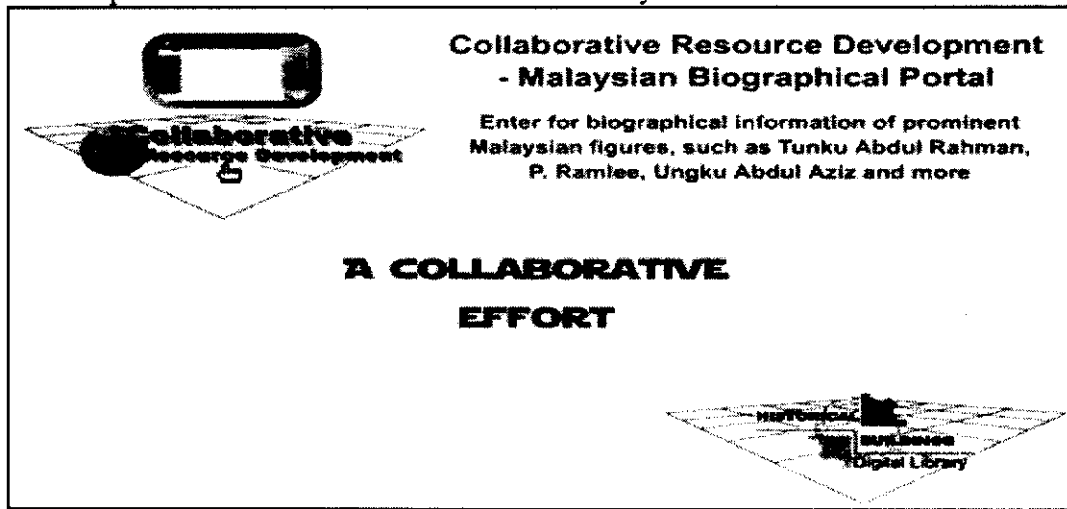
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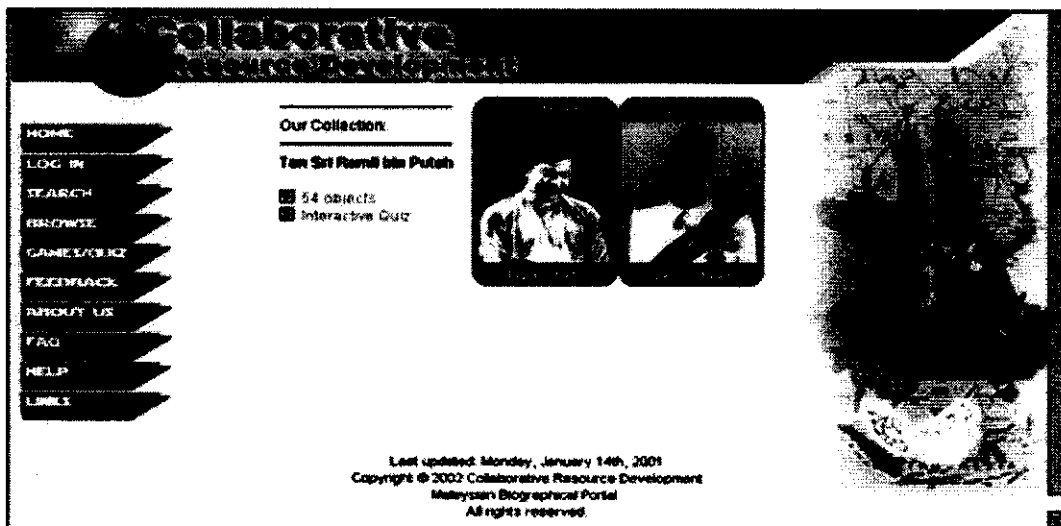
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APPENDIX: Selected Print Screens from the COREDEV

A short presentation in Flash that introduces the system



The main page of the Malaysian Biographical Portal



The Login Page

The screenshot shows the login page for Collaborative Resource Development. At the top left, there is a navigation menu with the following items: HOME, LOG IN, SEARCH, BROWSE, GAMES/QUIZ, FEEDBACK, ABOUT US, FAQ, HELP, and LINKS. The main content area features a 'LOG IN' form with two input fields: 'Login Name' and 'Password'. Below the form are three links: 'Sign Up', 'Forgot password?', and 'Administrator Login'. At the bottom of the page, there is a footer with the text: 'Last updated: Monday, January 14th, 2001', 'Copyright © 2002 Collaborative Resource Development', and 'All rights reserved.' On the right side of the page, there is a large, dark, abstract graphic.

The Registration Form

New User Registration Form

If you're already registered with us, then [click here to sign in](#).

Profile Information

[Home](#)

First Name

Last Name

State

Gender Male Female

Race Malay Chinese Indian Others

Birthday (e.g. 1985)

Address

Contact No **Example:** 0379654321 or 0123456789

School

Form 1 2 3 4 5

Account Information

[Home](#)

Email Address The email address will be your **login ID** every time you sign in **CoReDev**
Example: example@passport.com

Password Must be **at least four (4) characters long**, may contain numbers (0-9) and upper and lowercase letters (A-Z, a-z), but **no spaces**. Make sure it is difficult for others to guess!

Verify Password

By submitting your registration information, you indicate that you have read and agree to the [Terms and Conditions](#).

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The User's Page

The Administration Menu page

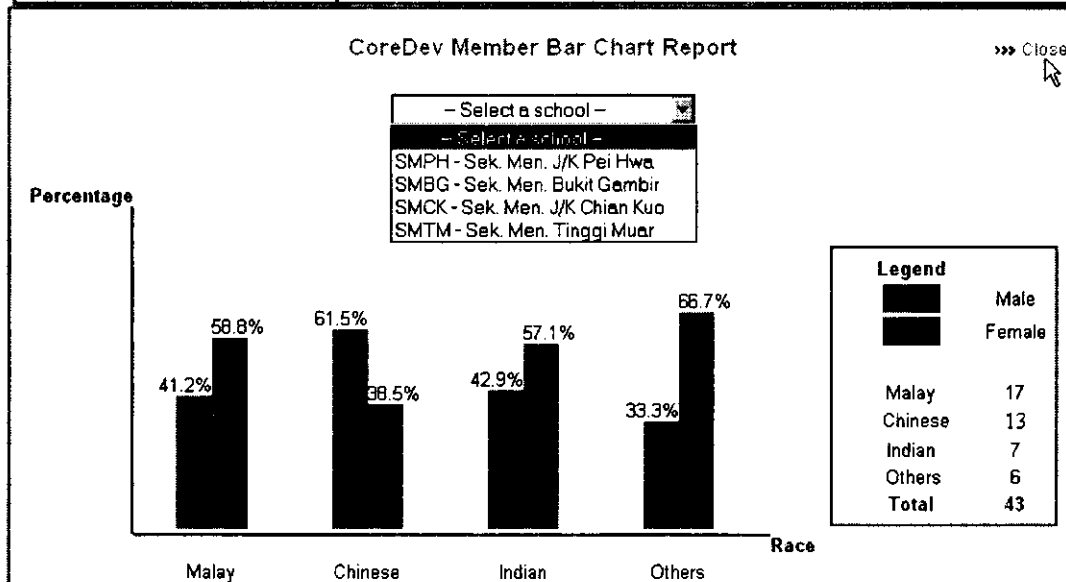
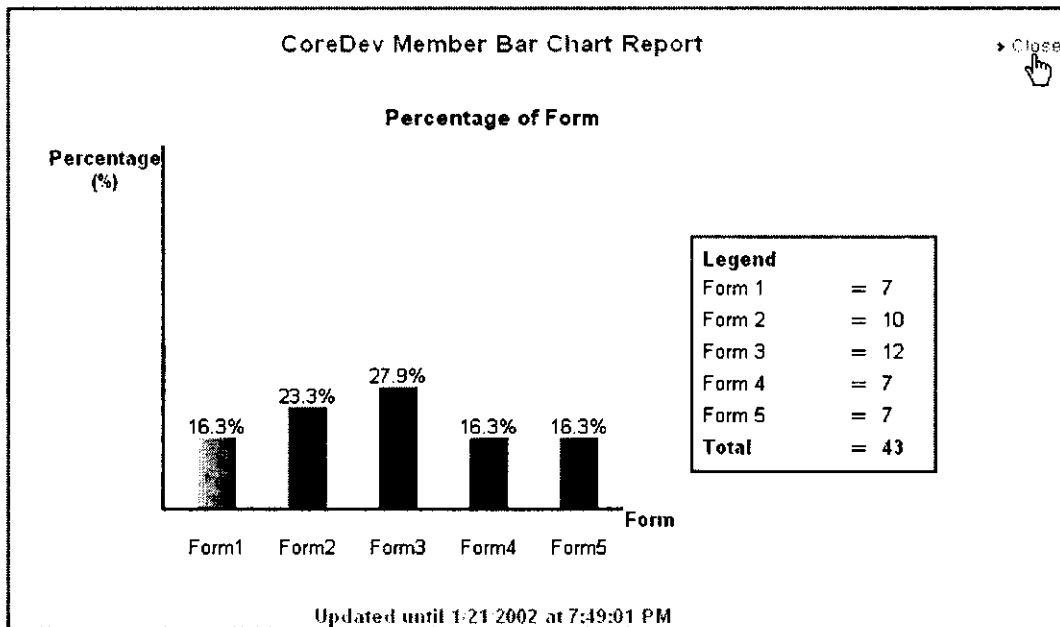
Browsing interface

Track Student Record By School and Form

All School AND All Student

Please select which fields you want to display:

<input type="checkbox"/> StudentID	<input type="checkbox"/> FirstName	<input type="checkbox"/> State
<input type="checkbox"/> Gender	<input type="checkbox"/> Race	<input type="checkbox"/> Address
<input type="checkbox"/> Contact_no	<input type="checkbox"/> School	<input type="checkbox"/> LastLogin
		<input type="checkbox"/> EMail



The Power and the Passion: Igniting a Love of Reading through Literature Circles

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Abstract

This paper presents the simple but successful Literature Circles model at St Andrew's Cathedral School within the context of the importance of developing reading as a foundation for building knowledge. It covers crucial factors for success of the program, practicalities and procedures, the selection of books, and strategies for substantive discussion and a book list of the most successful titles.

Real reading goes to the heart of what it means to be human. Through reading we create ourselves. Through reading we re-perceive the world and our relationship to it. Through reading we extend our capacity to create, to be part of the generative process of life.

Adapted quote from Senge
(Dawson & Fitzgerald, 1999, p. 1)

The adaptation of this quote reminds us what a foundational skill reading is. It has deep implications for our quality of life as human beings, our learning and our creativity. A reflection on reading adapted from Aidan Chambers (1983, pp. 6-7) spells out more precisely why so many people place a high value on reading literature:

Reading literature:

- ❖ helps extend our experience and knowledge of life;
- ❖ helps our personal growth – you discover yourself in literature and therefore learn to understand more about yourself;
- ❖ helps us to learn to spell and use our language better;
- ❖ entertains by passing the time pleurably and in a socially acceptable way;
- ❖ helps our spiritual development;
- ❖ teaches us how – and how not to – behave;
- ❖ stretches the imagination;
- ❖ challenges and changes us;
- ❖ gets us into the closest possible contact with another person – the author;
- ❖ allows us to experience all kinds of possibilities from murder to childbirth, without suffering the consequences of undergoing the experiences in real life;
- ❖ is a game-playing activity in which we “try out” various possible solutions to life-problems and see how they might be worked out before having to tackle them in reality.

A survey conducted in Australia in June 2001, *A National Survey of Reading, Buying and Borrowing Books* by A.C. Nielsen and reported by Ray Crotty, President of ASLA in its journal, produced interesting results – of the five most frequently mentioned leisure activities, watching television led the way, closely followed by reading for leisure. The other activities mentioned were using the Internet, computer games and movies but these were significantly behind in popularity. Another result indicated that 78% of the adult population read for pleasure every day or most days and that 8.1 hours were devoted to reading per week. (Crotty, 2001)

The recently released results of the PISA Project (The Programme for International Student Assessment) illuminate the performance of students in 32 countries in reading, scientific and mathematical literacy. The assessment of students' reading literacy was achieved by measuring the students' ability "to construct, expand and reflect on the meaning of what they have read" in accordance with contemporary perspectives on reading. (OECD, 2000, p. 6) The strategies of information retrieval, interpretation of meaning, reflecting on the meaning and evaluating it were assessed. One interesting finding was that student performance in reading scores was closely associated with students' utilization of school resources, particularly the school library, laboratories, computers and the Internet. (OECD, 2000) This can be seen as a significant validation of school libraries.

Reading is an essential as well as a pleasurable skill. We want our students to be lifelong learners, to feel and be empowered by their ability to read, to be well-equipped as citizens of a knowledge society. We know too from research that it is the quantity of reading which impacts most on academic achievement rather than the quality. We want our students to develop a passion for reading and to become discerning readers.

At St Andrew's Cathedral School we have had significant success with our Literature Circles program. It is well established, founded five and a half years ago by our Head Librarian Yvonne Jenkins who also initiated the program at Trinity Grammar School in 1995. St Andrew's Cathedral School has developed during that period, from being a boys' school of about 500 pupils to a school of 1000 students including girls in the final three years. The Literature Circles program has had a positive effect within the school and is widely supported by staff, parents and the Head of School. We have seen poor readers and non-readers become positive and even voracious readers and even budding novelists themselves.

Harvey Daniels (2002) has recently published the second edition of his book, *Literature Circles: Voice and choice in book clubs and reading groups*. According to this, research carried out in schools in Chicago between 1995-1998 linked literature circles to student achievement. Apparently test scores in the targeted schools outstripped other schools by 8 – 27 percent.

Why do it?

There are many significant reasons to run a Literature Circles program:

- ❖ To encourage reading enjoyment
- ❖ To develop critical literacy
- ❖ To give students the opportunity to engage with texts
- ❖ To develop an emotional response
- ❖ To encourage a sense of empowerment in students through their choice of reading material and through skill-development

- ❖ To hone a foundational lifelong skill
- ❖ To encourage cooperative learning
- ❖ To develop communication skills through sharing and substantive conversation
- ❖ To build on the English curriculum strands of reading, listening, speaking and writing

What is it?

Literature Circles is an intensive reading program which encourages the habit of daily reading for enjoyment, using attractive contemporary well-written books with a strong story. The process involves quiet reading in class and at home, discussions with the group reading the same book and writing the occasional response to the book.

Features of Literature Circles at St Andrew's:

The aim is **enjoyment** above all. Students **have a choice** from selected texts. These are all **strong stories**, carefully selected by the teacher librarian and known to interest boys. A word of experience here: "Old books from the English bookroom are a recipe for disaster." (Jenkins, 2001) The students **form groups** with others who have chosen the same book and read quietly and discuss until they finish the book and form other groups around other books. The class cycles through the following phases:

1. Silent reading
2. Discussion groups (with two or more groups per period with the teacher librarian as facilitator)
3. Writing responses (all students). The English teacher models silent reading with the main body of students.

Making it happen: Practical organization

A successful Literature Circles experience for students demands thoughtful and meticulous preparation and organization by the teacher librarians. At first, a two week block of all English lessons is negotiated with the English teacher and the seminar room is booked if possible as it is quieter for silent reading and the Literature Circles collection is housed there. The teacher librarian develops a "short list" of approximately six novels, which adolescent males enjoy and of which we have at least five or six copies each. If we are short of copies, we order more. Based on these novels the teacher librarian designs an attractive choice sheet with photocopied graphics, blurbs and excerpts from the text.

When the students arrive for the first class they find on their desks a sheet explaining Literature Circles, a colourful bookmark with ideas for points for discussion/questions and post-it notes to mark interesting points for discussion. With the Literature Circles collection are kept photocopy box lids with our handouts in them – Notes for Students explaining the program, Choice sheets, Student evaluation sheets, scrap paper for those who forget their reading journals, bookmarks, and packets of post-it notes. Discussion groups move out of the seminar room and sit in one of the comfortable areas; there is a semicircular glass alcove at the entrance with deep red armchairs and sofas and often discussions are held in that space. At least three times during the Literature Circles program students make written responses, which are marked.

Procedure for secondary classes

Teacher librarian preparation	<ul style="list-style-type: none"> ❖ Negotiation with classroom English teacher & booking of classes ❖ Careful selection of texts ❖ Production of choice sheets with graphics, blurbs and extracts
Week 1 Period 1	<ul style="list-style-type: none"> ❖ A brisk pace is needed for the first class ❖ Choice sheets, bookmark, & post-it notes are on the tables before each student ❖ Teacher librarian takes control of class – brief introduction to Literature Circles, what will happen, emphasizing enjoyment, choice, silent reading, discussion, writing and what students need to bring to each lesson ❖ The teacher librarian introduces each book enthusiastically ❖ Students look at the books on the list while the teacher librarian sorts sheets into piles ❖ The teacher librarian allocates books to students ❖ Students borrow and join others with the same book ❖ Any time left is for silent reading ❖ 5 minutes before the end of the class, students negotiate with others in their group where they will read to and record this in their homework diaries.
Week 1 Period 2	<ul style="list-style-type: none"> ❖ During classes there will often silent reading in the library (to develop the habit and reinforce the expectation) ❖ The teacher librarian can hold a discussion group out in the library if students in a group have read more than 1/3 of their book ❖ The English teacher models silent reading with the class
Week 1 Period 3	<ul style="list-style-type: none"> ❖ At the start of the lesson check if any students have finished reading their book. These students choose a new one from the list and borrow. ❖ Journal writing – for 15+ minutes: personal response and reference to the text is most valued; students can use post-it notes and hints on the bookmark for ideas about what to write and can illustrate their responses too ❖ Discussion group/s facilitated by the teacher librarian
Week 1 Period 4	<ul style="list-style-type: none"> ❖ Two discussion groups one after another with teacher librarian ❖ The rest read quietly with the classroom teacher in the library
Week 2 Period 5	<ul style="list-style-type: none"> ❖ Journal writing ❖ Discussion groups ❖ Silent reading
Week 2 Period 6	<ul style="list-style-type: none"> ❖ Discussion groups ❖ Silent reading
Week 2 Period 7	<ul style="list-style-type: none"> ❖ Journal writing – 15+ mins ❖ Students fill out evaluation sheets (sometimes) ❖ Presentation of Middle School reading list ❖ Free choice of borrowing ❖ Silent reading if any time is left ❖ Thank the class and stress your enjoyment of the time (if true)

This is a rough plan. However, the sessions are flexible and depend on the teacher librarian's choice of activities.

Selection and introduction of books

In seeking excellent texts for literature circles, the teacher librarians are in a continual process of seeking and reading books that will appeal strongly to their students. This involves listening to students about their reading discoveries and interests, reading book reviews and talking to booksellers and colleagues about books.

In the class the teacher librarians introduce and promote each book on the list, often reading a short extract to whet the students' appetites. It is vital the teacher librarian has read and is enthusiastic about the books so that they can be positive advocates of them and also be fully involved in discussion with the students.

Written responses

A written response is generally made about three times during the block of time. The questions on the bookmarks, which have been developed by my colleagues Yvonne Jenkins and Anthea Comer, can be used by students to help them choose where to place post-it notes as they read and as prompts for writing responses:

Post-it Notes Guidelines and Bookmark for Discussion Group Activities

- *the part you liked best*
- *what you felt was funny / sad / worrying / irritating / boring / inspiring*
- *what you thought was interesting*
- *words or images you liked*
- *when you thought you could guess what was going to happen next*
- *when you were impatient to find out what happened next*
- *bits you couldn't make sense of or words you couldn't understand*
- *when you would have done or said the same thing if you'd been there*
- *when you learnt something new and interesting*
- *when a question suddenly popped into your head*

Assessment

There are many points of view on how to assess a dynamic process like Literature Circles. At St Andrew's we have found it works well to use the written responses as the basis for assessment as they generally correlate well to the students' contributions to discussion and immersion in the Literature Circles experience. The written responses are marked by the teacher librarian. Comments are positive and encouraging and seek to elicit higher order responses. If an attempt is made to express a response, students are always given a pass. The students receive the grade and a comment but the equivalent marks are recorded for the teacher on a class list. The grades and the equivalent marks are:

GRADE	CORRESPONDING MARK
HD = High Distinction	10 marks
D = Distinction	9 marks
C++ = Credit++	8 marks
C+ = Credit+	7 marks
C = Credit	6 marks
P = Pass	5 marks

Most teachers incorporate these marks into their class marks and this helps students put more effort into their response. The best responses may also be read out with the student's permission and are published by the teacher librarian in the school's weekly bulletin.

Discussions

The most popular and rewarding part of Literature Circles is usually the discussion groups. Many researchers endorse the value of critical discussion. Dr Stanley Pogrow of the University of Arizona has commented: "Engage in sophisticated conversation. The most underused technology in our classrooms is not computers, it's conversation. Teach children how to probe. Build a thinking environment. Engage in direct critical discussion and reflection on issues. I call it controlled floundering." (Quoted in Nelson Central School Newsletter, 2001). "Substantive conversation" is regarded as one of the hallmarks of intellectual quality, which is one of the four dimensions of Productive Pedagogy, expanded by academics at the University of Queensland in collaboration with other universities (Hayes, 2002). "Substantive conversation" occurs when students maintain a sustained dialogue among themselves with little teacher maintenance. We have never used predetermined roles for students in our discussions, such as the 'connector' and 'literary luminary' (Fitzgerald, 1997); a more free-flowing approach seems to work best in our school.

The discussions are held sitting in a circle on comfortable seating. The teacher librarian needs to be strongly affirming of students' contributions and can use these as springboards to further the discussion.

Some useful ground rules for discussion are:

- ❖ Permission to disagree with each other
- ❖ Listening to each other
- ❖ Speaking one at a time
- ❖ Knowing that there are no right or wrong answers, but OUR OWN response
- ❖ The need to include everyone in the discussion

(Ward, 1998)

Discussion Questions

A useful strategy for the teacher librarian to adopt is, when reading a book for Literature Circles, to fill in a small notebook or a card with notes about the book and to generate a list of up to 10 interpretive questions for discussion. These are the most helpful for Literature Circles.

There are three types of questions, all with a useful purpose:

Factual questions are direct with a simple correct answer. A couple can be useful at the start. Examples might begin with *Where? When? Who?*

Interpretive questions allow a variety of responses, viewpoints and interpretations and can generate significant discussion and lead to deeper understanding. Jamie McKenzie (1997) has written at length about the central importance of sound questioning for developing independent thinking and exploration and he believes that the prime questions for generating important thinking are: *Why? How? and Which?*

Evaluative questions encourage readers to express their feelings and thoughts about a book and judge it. These are best left towards the end of the discussion. (Ward, 1998) Often these types of questions might begin with *Do you agree with... What would be...* (Morino Institute, 2001)

Student evaluation of Literature Circles

Sometimes, as well as encouraging free borrowing during the final session, we formally evaluate the program by asking students to respond anonymously to the following questions:

1. List the books you read and rate them from one to three stars.
2. What was the best thing about Literature Circles?
3. What was the worst thing about Literature Circles?
4. List books you think we could use in the program with the level they would be appropriate for.
5. Any other constructive suggestions as to how we could improve Literature Circles?

(Jenkins, 2001)

Some of the recent answers to Question 2 follow:

That I got to read books that I've never heard of before and that were good (*Stormbreaker* by Anthony Horowitz, *Animal Farm*, *Lord of the flies* by William Golding)

I liked the time to read which was like a break from school work and the talking about the book in a group. (*Lockie Leonard human torpedo* and *Scumbuster*, *Hitchhiker's Guide to the Galaxy* by Douglas Adams)

I enjoyed the talks the most. It was good because I could share my opinion about the book with others. (*Hitchhiker's Guide to the Galaxy*, *The Restaurant at the end of the universe*.)

Other possibilities for Literature Circles

A lower ability group has been involved with Literature Circles using books on tape with individual headphones borrowed from the Languages faculty. In each group each student had a copy of the book and their set of headphones was plugged into one cassette player together with up to five others listening to the same book.

Year 12 English teachers have asked the Head Librarian over several years to run a Literature Circle type discussion with their students on senior texts such as Michael Ondaatje's *In the skin of a lion*.

Critical factors

There are a number of critical contributing factors to the success of Literature Circles at St Andrew's Cathedral School

- ❖ Selection of strong stories
- ❖ Thoughtful introduction of texts to whet the appetite
- ❖ Teacher librarian leadership of program and pacing of elements
- ❖ Support of English teacher, faculty and Head of School
- ❖ Teacher librarian must have read the book and be an enthusiastic and positive advocate of it
- ❖ Flexibility
- ❖ Open relaxed respectful atmosphere in discussions
- ❖ Motivation provided by best written responses being published in the weekly bulletin
- ❖ A library environment conducive to reading

Results of the Literature Circles Program

It has become “cool” to read at St Andrew’s. The atmosphere of mutual enjoyment of books and the opportunities for discussion spill over into all places in the school - chatting with students about their reading at lunchtime, sharing our discoveries in the corridor on the way to roll call, discussing our reading at sport, consulting each other about recommendations for reading. There are also appreciative phone calls and letters from parents about the positive effect Literature Circles has had on their sons and parent-initiated consultation about their child’s reading.

One parent wrote the following paragraph in a letter of appreciation:

“It is a delight to see R. spending hours reading books of substance and quality and thoroughly enjoying it. While we are a family who loves books, it is R’s experience of Literature Circles which has really kick-started him into this mode.” (Comer, 2001)

The whole school community is able to enjoy the perceptive comments made by some students in their written responses when they are published in the weekly newsletter. These enthusiastic peer recommendations also motivate other students to read those books. There is a natural and warm continuing dialogue about books between students and library staff, initiated and nurtured through Literature Circles.

The end result

It is our hope that the result of this process is many passionate, empowered and independent readers.

“If reading is about mind journeys, teaching reading is outfitting the travelers, modeling how to use the map, demonstrating the key and legend, supporting the travelers as they lose their way and take circuitous routes, until, ultimately, it’s the child and the map together and they are off on their own.” (Keene and Zimmerman, quoted in Daniels, 2002)

Credits

The Literature Circles Program at St Andrew’s Cathedral School has been introduced and honed through the inspirational leadership of Yvonne Jenkins, Head Librarian. Anthea Comer as the primary teacher librarian has adapted the program to suit the primary students. Its success is also due to the enthusiastic support of the Head of School, Phillip Heath, the Head of English, Christine Crump, the Head of Primary, Marilyn Smith and the teachers, particularly of the English Department.

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SITES TO VISIT ON QUESTIONING:

Sites on questioning, researching and leading discussions by Jamie McKenzie:

Questions and questioning: The most powerful technologies of all. <http://emifyes.iserver.net/fromnow/nov99/techquest.html>

A questioning toolkit continued. <http://emifyes.iserver.net/fromnow/nov97/toolkit3.html>

The question is the answer: Creating research programs for an age of information <http://emifyes.iserver.net/fromnow/oct97/question.html>

Questioning.org

<http://www.questioning.org/>

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Deadly Unna? - Phillip Gwynne Nukkin' Ya	Space demons - G. Rubinstein 2. Deltora Quest - Emily Rodda 2.
Hatchet - Gary Paulsen	Mrs Frisby & the rats of Nimh - RO'Brien
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Lockie Leonard Human Torpedo & L.L. Legend - Tim Winton	Matilda - Roald Dahl 3. The twits - Roald Dahl 4.
Airframe - Michael Crichton *	Tashi and the giants - A, Fienberg 4.
Sophie's world - Jostein Gaarder *	Victor's Quest - Pamela Freeman 4.
Black Hawk Down - Mark Bowden *	1. = better readers 2 = developing readers 3. = reluctant readers 4 = newly independent

Elizabeth Greef, Yvonne Jenkins & Anthea Comer

Issues for School Libraries in the Pacific: A Case Study – Western Samoa

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Abstract

This paper reviews the literature and previous research about the development of school libraries in South Pacific countries. Then the practical issues currently facing school libraries in the South Pacific are considered, drawing on recent experiences in Samoa, where the authors have worked together on the upgrading of libraries in government schools. Some of the issues arising from this work, and possible solutions, are discussed.

Introduction

Since March 2001, the authors have worked together on the upgrading of libraries in government schools in Western Samoa. Some of the issues to be addressed in school library provision in Samoa, in all school sectors, are similar to those experienced in many other developing countries. In commencing this project, the authors looked at previous research reported about the development of school libraries in both the South Pacific countries and other developing countries, in order to learn from previous experiences. This literature is reviewed, and then some background information about Samoa and its education system is provided. The issues that emerged in the Samoan project and some possible solutions are then discussed.

Literature Review

This review considers research previously conducted in South Pacific countries and also reports on some work done in other developing countries that was relevant to the Samoan experience. To attempt to review all literature on school libraries in developing countries is beyond the parameters of this paper.

The main thrust of previous work in the South Pacific centred on the *UNESCO South Pacific School Libraries Project*, which ran from 1978 until 1991. It aimed to improve school libraries in the eleven independent states: Cook Islands, Fiji, Kiribati, Nauru, Niue, Papua New Guinea, Solomon Islands, Tonga, Tuvalu, Vanuatu, and Western Samoa. Some training programs for teachers and school library staff were designed and strategies developed to

deliver library services to isolated rural populations (Hallein 1992, 1993). This project was also discussed in a paper presented in Australia (Hallein & Poston-Anderson 1992). A workshop held under the auspices of the project, in Suva in 1981, recommended the development of some short courses for training school librarians and to educate teachers about the use of school libraries. These courses were subsequently written by a team of Australian library educators and were published by UNESCO in 1979. Some training was delivered in Sydney, Australia in 1985 and in Western Samoa in 1986 and in Vanuatu in 1987, 1990, and 1991. The Vanuatu workshops initially concentrated on storytelling and drama as a means of encouraging literacy. Later workshops focussed on providing specific library skills to those teachers who held responsibility for school libraries.

Wools (1992) has suggested ways of addressing the problems faced by developing countries in school library provision. She suggests that schools should use desktop publishing to create materials for school libraries. These include materials such as biographies of students' friends and families, and documenting local culture and folklore. She also recommends the audio recording of oral traditions and storytelling. This approach addresses to some extent the lack of materials in general, and especially those in indigenous languages. But to do this schools need a computer, desktop publishing software and supporting CDROMs, a binding machine, tape recorders and possibly digital cameras.

Many of the issues about the provision of school libraries in developing countries have been comprehensively addressed by Dilke (1994). Firstly the challenge of introducing libraries where there has been no culture or tradition of library provision and use is highlighted, and this involves using new and different approaches. She suggests that one of the most significant issues is the differing levels of provision ranging from none at all in some small rural schools through to relatively sophisticated provision including access to electronic information available in some urban secondary schools and independent schools. She reports that very few purpose built libraries exist in developing countries, and often there are only nominal library collections administered by the principal or by school students under the supervision of a teacher. A lack of infrastructure to support regular electrical power and telephone services represents a particular barrier to establishing libraries that can provide access to electronic information in a range of formats and through the Internet. Dilke also draws attention to the environmental conditions in some countries where the use of fans and air-conditioners affects the maintenance of library collections.

Sothik (1999) describes the problems addressed in establishing school libraries in Cambodia where war has resulted in a critical lack of books and any library infrastructure. These problems are also faced by some small Pacific countries, although for different reasons; problems such as few trained librarians, few outlets for purchasing books, few libraries, school libraries which are a collection of old outdated books, or where the few decent books are locked away in a cupboard for fear they might be damaged if used.

The lack of professional expertise in developing countries is addressed by Knuth (1999). The small number of trained school librarians leads to a lack of networking and professional support, and a lack of professional literature with a local focus. Knuth also discusses the possibilities of school library development in developing countries being supported by public libraries, but finds that often public library infrastructure and support offered by government is too weak for this to be viable. Some countries have used a model of joint-use school/public libraries, especially in rural areas. Also in countries where the

education system is strongly oriented to textbook based learning, the role of school libraries may not be understood or seen to be irrelevant.

The review of the literature alerted the authors to many problems that were present in Samoa, but also reminded us that there would be problems that are common to school libraries all over the world. These include a lack of understanding of the role of the library in the school, and a lack of trained staff, particularly in primary schools. Often teachers themselves do not have well-developed skills in locating and accessing information. The school library can be a focus for improved information literacy skills for students, teachers and the wider school community.

Samoa –Background

Samoa consists of nine islands located in the Pacific Ocean. The estimated population (projected from the 1991 census) live on the two main islands of Upolu and Savai'i. These two islands are connected by a vehicular ferry and air transport services, and roads are good on both islands. Thus Samoa does not face the problems experienced by several other Pacific countries, of vast distances and small isolated population centres. Over twenty percent of the population live in the main town of Apia with most of the remaining population being in small rural villages on the two main islands. Population growth has been low, due to external emigration patterns.

Samoa has a small open economy, largely dependent on agriculture and agro-processing industries, and heavy reliance on development assistance. Severe economic setbacks have been experienced as a result of two major cyclones in 1990 and 1991.

Schools in Samoa

Education has been prioritised in the Government of Samoa's economic strategy (2000) with the chief focus being the equitable access to quality education for all children in the Samoan education system. There are nine key areas for development during the final five years of the Education Department's strategic plan covering 1995-2005:

- Encourage the development of early childhood education;
- Improve the overall quality of primary education;
- Increase access to secondary education;
- Meet the educational requirements of children with special needs;
- Strengthen teacher education;
- Improve the responsiveness of post secondary education by facilitating stronger linkages with secondary schools;
- Increase support for non-formal education;
- Improve policy formulation, planning and management within the Education Department;
- Improve primary and secondary school management.

(Government of Samoa, Education Department 1999)

There are just over two hundred government, independent and church schools in Samoa, catering for approximately 54,000 primary and secondary students¹. School attendance is compulsory from the ages of 5 to 14. Four government secondary colleges are directly managed by the Department of Education. The remaining government schools are built and maintained by village communities, with staffing and educational provision

provided by the Department of Education. Classes are conducted both in English and Samoan. There are three independent schools in Samoa and thirty five church schools administered by a range of religious denominations.

Libraries in Samoa

There is limited library infrastructure in Samoa. There is a public library, the Nelson Memorial Public Library (NMPL) in Apia, which also acts by default as the National library. The NMPL also has a library in Salelologa on the island of Savai'i. This public library service is administratively part of the Education Department. The NMPL has been funded by the National Library of Australia through its Regional Cooperation Program, for the last three years. This funding has provided computers and also training in computerised cataloguing and the use of DB/Textworks. The NMPL previously administered a mobile library service for schools on both islands, operating two vehicles to visit schools and exchange deposit collections. This service ceased operation some years ago due to vehicle breakdown, but currently the Education Department is taking steps to reinstate it.

There are three academic libraries in Samoa – at the National University of Samoa, the Samoa Polytechnic and at the Alafua Campus of the University of the South Pacific. There are several small special libraries in government departments, donor agencies and non-government organisations.

Although there is a very small number of professionally qualified librarians in the country, there is an active Library Society that has membership from both the librarians and library staff and interested members of the general community. There are two small bookshops in Samoa.

The Development of School Libraries in Samoa

Most of the problems identified in the literature review exist in Samoa. The level of school library provision varies enormously from none at all, to comparatively sophisticated libraries in some of the privately funded schools or government colleges. Very few government schools have a school library. Those that exist are in converted classrooms, usually equipped with home made shelving and stocked with materials discarded from libraries in developed countries. Often these materials are not appropriate either from a subject or reading level context. Some secondary schools have teachers who hold responsibility for the administration of the library. Two of the four government senior colleges do have reasonably equipped libraries. One of these (Avele College) was redeveloped and moved to a larger building, with the aid of the authors and the staff of the NMPL, during 2001. The other, at Samoa College, is longer established and provides electronic information resources as well as books.

Because there are few school libraries the two branches of the NMPL are used intensively by school students outside of school hours. But for students who live in isolated rural communities the use of a public library is not an option.

There are several issues to be addressed in developing school library provision in Samoa. These include the lack of qualified library staff, the paucity of materials in indigenous languages and collection maintenance in tropical climates. Donations of largely irrelevant and outdated library materials from libraries and service organisations in more developed

countries are not necessarily a benefit. As well as the lack of qualified library staff, many teachers also need staff development programs to help them understand how the school library can be used to support the curriculum. In the past various strategies have been used in Western Samoa to overcome these problems, such as the mobile library service to rural communities, intensive staff development programs run by school library educators from overseas countries, and the use of inexpensive and easily accessible resources, such as puppets and drama to encourage the development of literacy programs.

Current Approaches

The Education Department has recognised that school libraries have an important role in the achievement of its current strategic plan. The standard of existing school libraries needs to be raised, and school libraries established in schools that currently do not have a library. The Department also needs a library to support its own staff, such as administrative staff, curriculum support specialists and school review officers. The Department also hopes to develop a resource centre for teachers on the island of Savai'i, which will be situated adjacent to the public library. It is hoped that a teacher reference collection will be included in this centre.

The placement of the public library service within the Education Department is a positive factor in the provision of school libraries. Firstly, although the public library has only one fully trained librarian on its staff, the staff nevertheless have a range of valuable experiences in libraries and education. Several of the staff are currently pursuing library education programs through distance education from the University of the South Pacific (USP). The NMPL also has the benefits of links with other libraries in the region, such as the National Library of Australia, as mentioned above, as well as links with the USP Library, which strives to offer support to other libraries in the Pacific (Mills 1992). There are examples of successful models in countries such as the UK where school libraries are staffed, maintained and supported through a public library service that is aligned to an Education department within government, and there is no reason why this cannot be a successful approach for Samoa. However, as Knuth (1999) has pointed out, this approach requires sufficient funding and infrastructure support from the government for the public library.

The Education Department is currently working, with the assistance of the Asian Development Bank (ADB), on a project that will significantly improve the quality of education offered in several government primary and secondary schools on Upolu and Savai'i. Each redeveloped school in the project will have a new school library. Our challenge is to plan and equip these libraries in a way that is sustainable. These libraries will then become models for other schools to follow in providing libraries. The ADB has recently completed a similar project in the Cook Islands, so we have been able to learn from experiences there. The library buildings will not have fans or air conditioners, so building design has emphasised air circulation as a primary feature. Selecting library resources has presented particular challenges in finding material that is at high interest level and culturally appropriate, whilst being at an appropriate reading level in English. Finding resources published in Samoan has also been difficult, but we are working cooperatively with the National Library of New Zealand on this.

Internet access for government schools in Samoa is not currently viable, due to the high cost of telecommunications. The village communities are responsible for the maintenance of schools and the cost of a telephone is too high for most. There are also

problems related to the inconsistent quality of telephone lines across rural Samoa and some parts of Apia, the main town. However in order to provide Samoan students with the opportunity to learn to use electronic information, computers and CDROM resources will be provided in school libraries in the project schools.

Perhaps our greatest challenge is the provision of appropriate training. There are a few teachers in government schools who have some library training. In the project schools teachers will be given responsibility for libraries and they will need some basic library survival skills, to be followed by professional training for some, who can then mentor and support others. As each new school library is set up, we hope to find volunteer school librarians from other countries who will come to Samoa to work alongside teachers in charge of libraries for several weeks, teaching them library skills in a one on one situation. We hope that we may gain some support for this from the recently established IASL International Volunteer Assistance Program (IVAP). Aside from the training of teachers who are managing libraries, teachers in general need to be educated about the role of school libraries in supporting the curriculum, as well as in encouraging literacy and recreational reading. Many still see the library as a part of the English curriculum, which is an idea not that long gone from many schools in developed countries.

An important outcome of our work has been the production of *Standards for School Libraries in Samoa* (Murray & Godinet 2001) that will become part of the Education Department's general standards for schools.

Conclusion

The provision of a school library service may often be the only means available to students to access both printed and electronic information, in countries such as Samoa, where public libraries, bookshops and other outlets for published information are scarce. In Samoa, there are opportunities for school libraries in rural areas to be developed as a resource for the community as well as the school.

Currently the availability of electronic information resources and use of the Internet have opened up new exciting possibilities for the delivery of school library services in South Pacific countries. In Samoa for example, there are several Internet Service Providers who are well aware of the possibilities for school libraries in delivering information electronically, and are keen to be involved in the development of these services. Thus as telecommunication standards improve, students in Samoan schools will eventually have the opportunity to access electronic resources using communications technology equivalent to that used by their counterparts in other countries, and develop the necessary information skills to locate, handle and use information from a range of sources effectively. However, in Samoa as in other Pacific countries, future planning must incorporate the provision of school libraries managed to a professional standard whilst considering what is culturally appropriate. This requires a range of approaches to facets of the service such as staff development and training, acquisition and collection maintenance, and design of library buildings, to ensure sustainable development.

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¹ Government of Samoa Education Department, Planning and Research Unit, 2000.

The Fight Against HIV / AIDS: Are the School Libraries at the Battle Front ?

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Abstract

HIV / AIDS has impacted history in a uniquely global manner. Sub-Saharan Africa has been very hard hit, Botswana the hardest hit. The onslaught of this viral war is being counteracted from many battlefronts. The study examines data from twenty of Botswana's educational libraries to determine how much, and to what extent they are providing information on HIV /AIDS in varied formats. The findings reveal there is very little information provision. In the assessment of the librarians, they are doing what they can with what little is available. The study concludes with the cry for better co-ordinated effort perhaps regional in scope.

Introduction

HIV / AIDS does not need an introduction to an informed gathering such as this. The issue may be in relating the virus to this conference, to school librarianship and the conference theme. The linkage lies in one word: relevance. For a library to be relevant and worthy of its place in the community it serves, it must share the vision of that community and identify with that shared vision by building a knowledge sharing culture with the community. It must share the hopes and aspirations of the community just as it taps into the economic and cultural wealth of that community. It must have a symbiotic relationship with the community.

The decimation of the HIV / AIDS scourge on human lives has certainly earned its place in human history. When at some future date the history of this era, in which we live, is written, many things would be mentioned. There would be mention of virtual libraries and advancement in human technology, trips to the moon, cloning of sheep, terrorism and 11th September 2001. But it would not be complete if it does not also touch on the fact, that it was a period when man became very concerned with his purpose in life. Vision and mission statements are plastered everywhere. Individual, institutional and organisational visions and mission statements are being artfully crafted in myriad formats everywhere. A threat to human existence be it in the form of a virus or a terrorist has only led to man taking a closer look at his' mission on earth.

As it is for any relevant public or private organisation, vision, mission and objectives should not stand in isolation from the communities served. The school library's mission should take cognisance of and reflect the vision of the community it serves. The communities would be the immediate school environment, comprising students, teachers, non-teaching staff and

administrators. It would also include extended school environment. This would be the locality with its neighbouring shops, hospitals and other public facilities, (ward, as we refer to these localities in Botswana), municipality, and the concerns of the nation at large. That is why school libraries must be concerned with HIV /AIDS.

That is what is being tackled in this paper. Whether the school libraries and other supporting libraries - in their selection, acquisition and management of their information sources including disbursement of funds, reflect the major concerns of the societies they are serving? Concerns such as the sickle of HIV / AIDS mowing down generations? HIV/AIDS, one of the defining public health issues of our era must influence every policy arena including the school library. In fact it is not a matter of choice for the school librarian; it is a responsibility.

The conference theme: "*School libraries for a knowledge society*" led to a challenge to school libraries in Botswana, the essence of which can be summed up into two questions:

- what is the society / community served currently most concerned with?
- to what extent are, they, school libraries, involved in building a knowledge sharing culture so that society's challenging needs can be met, and the libraries can also tap into the expertise of the community? This study set out to investigate issues arising from these concerns.

Botswana and Vision 2016

Botswana, a former British protectorate became independent in 1966, and will be celebrating 50 years of nationhood in 2016. A national vision generally referred to as Vision 2016 has been put into place. It has been widely disseminated and the nation has taken ownership of it. It sets out the nation's aspirations for the 50th birthday. Among the many great challenges set for 2016 are:

- ◆ the challenge of an AIDS free generation by 2016 (no new infections)
- ◆ and the overall challenge of *an educated and informed nation by 2016*.

There are numerous other challenges but for the purposes of this paper immediate pertinence is to the challenge of an HIV / AIDS generation by 2016. These challenges are actually linked; it is only by being informed that we can be empowered to take a stand, which will turn things around! As school / teacher librarians who have the privilege of directing the information seeking habits of the generation that will by 2016 be the adults and leaders of the nation, this places enormous responsibilities on us.

Literature Review

There is very little literature related to the study. Most of references would be from outside the sub region the area base for the study. It is evident is that very little study has been done in Africa on the subject of the libraries as battle front for any war, no matter its nature. While cultural inhibitions related to sex and sexuality in Africa, and may be a factor in this particular case, it is obvious that libraries are not seen as essential places for equipment against anything. By inference the power of information as artillery is also not recognised.

There was need to further establish whether there was documentation on what libraries have contributed to the HIV / AIDS fight, or the documentation of the specific involvement of libraries in any fight that threatens mankind no matter its nature.

The search revealed a proposed joint project between the Internet Learning Trust and Global Health Projects to promote HIV / AIDS Education and provide an accessible resource on HIV/AIDS for use in education throughout the developing world. There is to be developed a web CD that would serve as a major resource in many developing countries. The Department for International Development (DFID) was to be approached to fund project. The proposed project is to provide an additional extension medium to support other more traditional approaches to education about HIV/AIDS and other STDs. Its goal is the creation of a very powerful state-of-the art digital Emergency Management Library providing instant information, when needed. The entire collection is to be such as to be easily copied on to a hard disk or be made available over an Intranet or through an Internet Service Provider. It could not be established whether in fact the project has taken off, but it has tremendous possibilities for HIV / AIDS education, if it could provide free access. If access could be freely provided to the site.

That different types of libraries such as the Newburgh Free Library are building up collections became evident. The National Library of Medicine in the USA had awarded the latter the contract to create an AIDS Information centre. There are more than 600 HIV/AIDS-related books in the collection in addition to videos, magazines, pamphlets, and brochures. It is available to library patrons throughout the Mid-Hudson who call or visit the Newburgh Free Library. ([aidsinfo.html](#))

This is the type of support that school libraries in Botswana, South Africa and the rest of the affected world could benefit from if the libraries in the study could benefit from. Nearer home, searching revealed the report of an Evaluation of the Implementation of AIDS Action Programme Book (UNICEF-Harare, 1996) 'Let's Talk, books 1-7. The series developed by the Ministry of Health to educate and arm the school children in Zimbabwe on the dangers of HIV /AIDS was being well utilised. But it was a classroom project and librarians were not specifically involved as such.

Many interesting HIV / AIDS resources seem to have been put together in different parts of the world. The availability of these resources would have been very exciting if the institutions involved have been school libraries. The resources available in Hong Kong, found on the net consist of special collections catering for different HIV / AIDS issues. *AIDS Concern* is a grass-roots organisation whose main aim is to generate extensive community involvement in the provision of HIV / AIDS education and support services through trained volunteers. It provided amongst other things, a library collection of AIDS materials. The Hong Kong Aids Foundation is reported as having a library of over 900 publications and AV materials to promote its mission; which is limiting the spread of HIV infection in the community and providing support to those affected by the virus. *The Red Ribbon Center* and the *TEEN AIDS* project also in Hong Kong have both collections aimed at the prevention of HIV / AIDS infections among the youth.

This is similar to *Tsoga Monana* (a clarion call to youth arise) in Botswana. Though the *Tsoga Monana* project, established as pilot by the Botswana National Library, was originally more concerned with youth sexuality, than HIV / AIDS per se. It has a collection in one public library (Serowe Branch library), made up of videotapes, books, pamphlets, and charts. It is a small collection of less than 500 items. The project is supposed to be rolled out to the rest of the twenty-four branch libraries in the country. It has been cited in papers and articles, (Phaswane, 2001; Baffour-Awuah 2000).

Lekau (2001) refers to resource centres in Botswana, dealing with youth sexuality, but does not detail nature or format of resources. The paper stresses the fact that most of those involved in the provision of sex education resources are not working together and a lot of them are restrictive through their religious affiliation

The Problem

AIDS, has cut “a destructive path across the [African] continent, striking down young adults, young mothers and fathers, the core of society, in the prime of their life” (UCLA Newsletter Spring 2001, p1). AIDS has impacted Africa negatively and has wiped out a lot of the economic gains of the past 30 years. That it is a threat in Botswana has been recognised since the early eighties when the first case was recorded. Since then the Ministry of Health has been publishing estimates of people infected annually. By 1992, the rate of infection was reported at 60,000. Two years later, in 1994 it had more than doubled to 125000. Today, 2002, ten years later it is 300,000. Introducing the booklet: “Towards an AIDS free generation, the Minister of Education, George Kgoroba said, “HIV / AIDS threatens to wipe out three decades of human development in Botswana unless a social revolution takes place” (Ministry of Education, 2001).

Botswana’s population figures published by the Central Statistics organisation, from the 2001 census puts the population currently at 1.680 863 million. The 300.000 infected individuals means about one out of five members of the community are infected with the HIV virus. Among certain age groups the situation is worse. In the category of ages 15 – 49 the prevalence rate is said to be 55%. Pregnant women are said to be also 55% infected. The President of Botswana in February 2000 at the opening of an HIV /AIDS conference called for a continuous national mobilisation in the face of the threat posed by HIV /AIDS. He declared that he had personally taken the chair of the National AIDS Council, because of his prioritisation of the need to sensitise every member of the society of the urgent and pressing need for self protection against infections. He said it was time Batswana realised that their very existence was being threatened.

This is a time for introspection: a time when we assess our input into what is no less than a war that threatens our very existence.

The Rationale for the Study

The threat is not just national; no, in this era of globalisation, every threat to human existence anywhere assumes global dimensions. And the global scene must be set to underline its relevance and grave importance for the age group that would currently be in schools and be using school libraries. It is imperative that we all join the fight to counteract the threat of HIV/AIDS, globally, in the sub-Saharan region and at different national levels. It may be more pertinent for some nations than for others.

Recent figures released by UNAIDS reflect the extent of the problem:

- 40million people are living with HIV /AIDS world wide
- 2.7 of the 40m are less than 15 years old.
- 60% of the world’s HIV /AIDS cases live in sub –Saharan Africa
- 3.8 million adults and children became infected with HIV in 2000
- 12.1 of the 13.2 million world’s AIDS orphans live in sub Saharan Africa
- The eight worst affected countries of the world are in sub-Saharan Africa:

Botswana, South Africa, Uganda, Zambia, Zimbabwe, Namibia and Swaziland

Over 1 in 3 adults between 15 - 49 are infected in Botswana; in Zimbabwe its 1 in 4, and in RSA.1 in 5 (UNAIDS, 2002)

While the figures from Sub-Sahara Africa are bad, the threat is global: every continent is affected as is indicated by Fig 1 (UNAIDS, 2002)

FIG 1

The Sub-Saharan / Western Europe/ North America Scene: HIV / AIDS figs

Area	Period Epidemic Started	HIV /AIDS: No Of Adults & Children infected	Adults HIV /AIDS: prevalence rate	Adults newly infected	Positive women adults %
Sub Sahara	Late 70s Early 80s	28.1 million	8.4%	3.4million	55%
Western Europe	Late 70s Early 80s	560,000	0.3%	30,000	25%
North America	Late 70s Early 80s	940,000	0.6%	45,000	20%

Hypothesis

The premise of the study is that libraries and librarians are not seeing libraries as battlefronts from which to join in the fight against HIV/ AIDS. With relatively small budgets libraries are missing out on an opportunity to inform, empower and save lives.

Setting the Scene in Botswana

Botswana is one of the countries hardest hit by the HIV / AIDS. Over 30% of the population is said to be HIV positive. Recent Botswana census reports released by the Government Statistician indicates that life expectancy had fallen by almost 20% (The Botswana / Harvard AIDS Institute, 2002). Teenage pregnancy is high. Statistics from UNAIDS indicate that over 55% of pregnant women are HIV positive (UNAIDS 2002) This has very dangerous implications for the future, especially in terms of human resource development. It is also estimated that 35.5% of all HIV infections occur between females of ages from 15 – 19 (DISWAI 2002). Among teachers the prevalence rate of HIV/AIDS is more than 30% (UNAIDS, 2002) The impact on education in a situation where one in three teachers is said to be HIV / AIDS positive cannot be overstated. The number of orphans has increased from 36,000 to 57,0000 and is projected to reach 214,000 by 2010. How then could an information dissemination organisation like a school library continue its management as if the very existence of its users is not threatened?

One of the first things a visitor to Botswana would see at some of its immigration entry points would be the call to ABC (Abstinence, Being faithful and Condomising). The billboards are attempting to educate, the various NGOs are talking, conferences and seminars abound, and drama groups are acting. The whole school curriculum is set to go back to the drawing table to integrate HIV /AIDS into every aspect of it. The library as an information centre has to join the fight in an all out manner.

Some concerned organisations both national and international have joined the fight against the pandemic. Their support has been made in different forms. As at November 2001

the following countries and organisations had contributed funds to support Botswana in the fight against the onslaught. Some of them and the contributions made are listed here:

FIG 2: Contributions of Various Organisations towards the HIV /AIDS war

Organisation	Contribution
Swedish International Agency (SIDA)	US\$ 441,000; US\$ 642,000
Botswana-Harvard Partnership	1 million
European Union National)	645,000
Regional)	6.5million
Department of International Development (DFID)	11.3 million
United States Embassy	unspecified

At the national level an HIV / AIDS Policy is in place, a document that the study expected every library to have in its stock.

Methodology

To get the necessary data a questionnaire was designed and distributed to fifty teacher-librarians and school-librarians. Botswana has a total of 30 public and private senior schools and 206 public junior secondary schools (CJSS). Two health institutes and one college were also sent questionnaires. These would be support libraries for schools when they need to look further afield for information beyond their school libraries. Questionnaires were expected back within a fortnight. Unfortunately five weeks down the line only one had been received. Several telephone calls, faxes and visits later, twenty were received. A few have trickled in since then but were discounted.

For the personal assessment aspect of the study, ten institutions (50% of the respondents) were followed up. This was to establish the veracity of data provided, and to ensure that any misunderstanding that could have contributed to late dispatch of completed questionnaires could be clarified

Though data from twenty institutions is a fairly small sample, previous visits to schools around the country indicate that the school libraries are fairly similar. One of the institutions did not have a library, but had a stack of books meant to go into a library. But every government secondary school has a library structure, though stock varies considerably depending on institution and management. The questionnaires focused on HIV/AIDS material in different formats. It also tried to find out to what extent ICT was utilised in HIV / AIDS information dissemination.

It solicited two types of responses:

- ◆ A quantitative response giving statistics of material
- ◆ A qualitative response indicating opinion as to assessment of the situation

Data Analysis

From an analysis of the data of the 20 completed questionnaires, the following emerged:

- ◆ Of the 20 valid respond library personnel 3 had first degrees (B.A; BSc, etc.) and one an MLIS.

- ◆ 11 had undergraduate diplomas and 2 had certificates in teacher librarianship and 2 with Diplomas had part 2 of the certificate in school librarianship.(The Certificate in School Librarianship is a two part sandwich programme)
- ◆ 3 respondents were from private schools, and the rest from public or government assisted schools.
- ◆ 88% of responding institutions had HIV/AIDS material in stock, which ranged from a single book to 49 this is against a general book stock which ranged from 300+ to 26.000
- ◆ In many cases there was an average of one HIV / AIDS book to over a hundred students
- ◆ The percentage was so negligible that it could not be seen on certain types of Excel charts (fig 3)
- ◆ % of HIV/AIDS material in stock ranged from nothing to less than 1%
- ◆ Posters, videos and other non-book format was negligible
- ◆ Internet access was pitifully lacking three schools out of twenty.
- ◆ Internationalisation was being utilised as a tool in the fight (* Stuvesyansenant High school in the USA was involved in Co-operative ventures with schools in the developing countries, among them Botswana, Ghana, South Africa, Zambia, and Zimbabwe. One of their many concerns was HIV / AIDS. ONE Botswana School involved in the project was actively using the web sites to supplement its meagre library rescues.
- ◆ From the personal assessment it emerged that the few books were scattered across the libraries due to classification and shelving categories (300s, 600s and fiction)
- ◆ Three of the institutions marked with asterisks could serve as support libraries but their stock is not such as they could support all these libraries.
- ◆ There was little material but a lot of effort was being put into the fight but verbally, talks, clubs assembly addresses, and on one occasion even a parade, were being undertaken, to publicise the HIV /AIDS threat.
- ◆ Some staff indicated that a bigger budget than the P30.00 per student a year allowed for library book might help acquire more HIV /AIDS information sources.
- ◆ Another school indicated the need for TV/VCR to facilitate video shows
- ◆ One respondent indicated that she had just acquired condoms for the library to leave at the check out for users.
- ◆ In almost all the schools visited it turned out that the Guidance and Counselling Department (present in every school) was in charge of HIV /AIDS Awareness.

The Botswana National Library Network as Support

A search under into the National Library Service's OPAC for its network of twenty-four public libraries indicated a total of 113 items. This would not include posters and charts, as these are not processed. Nor would it include CD ROMs as they are not acquired separately for the branch libraries. (A few such as Book Find are centrally acquired and provided to external branches through networking.) Any registered member can borrow material within any public library. If a particular branch does not have what a user wants the library can request it from another branch so theoretically the 113 titles can be assessed by any user within the country.

Fig 3:
The bright colour reveals the bare presence of HIV /AID material among the general book stock

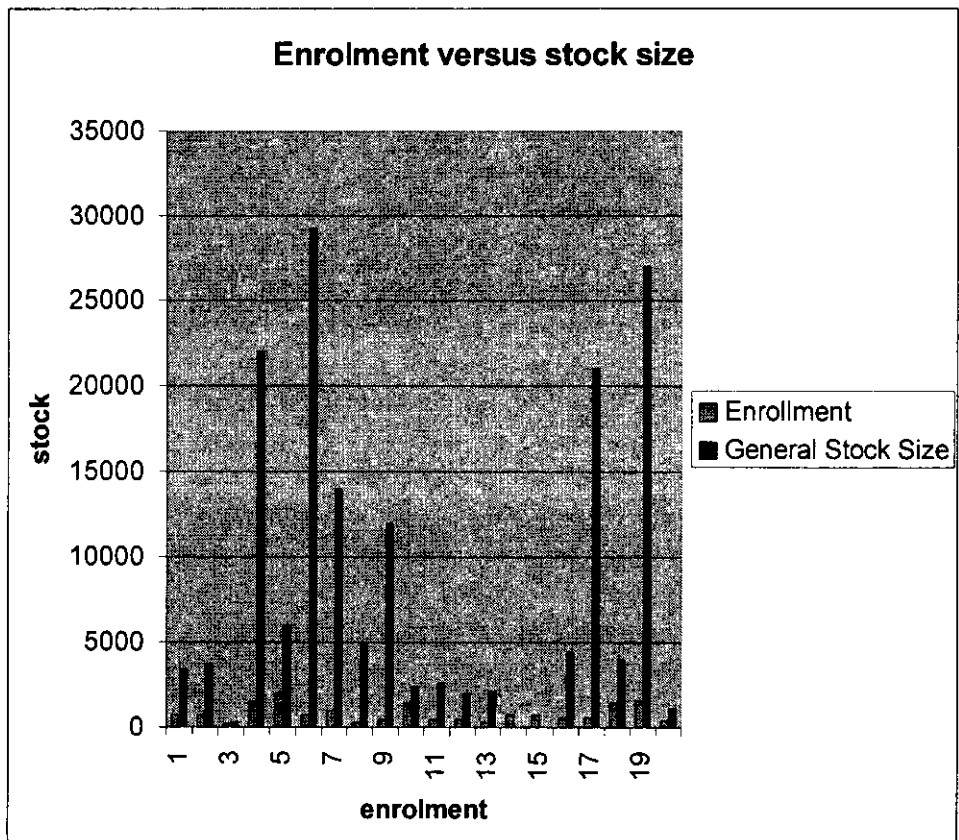
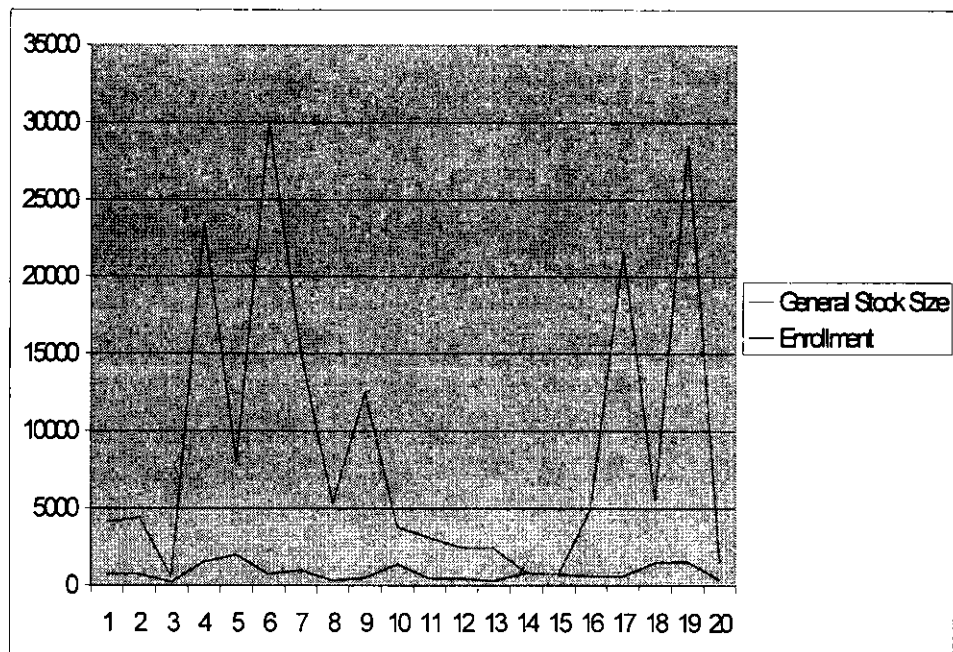


Fig 4. Book stock averaging about one to four against student population



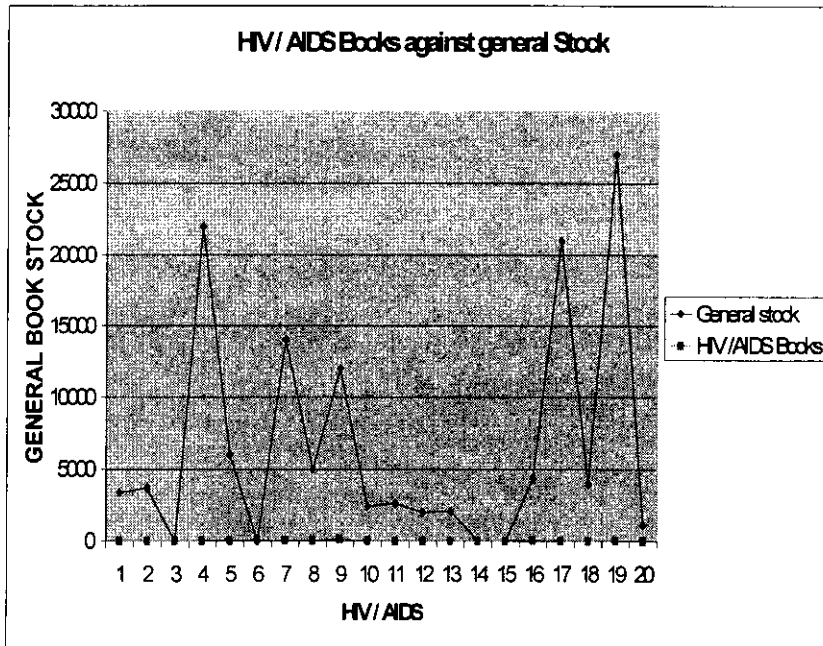
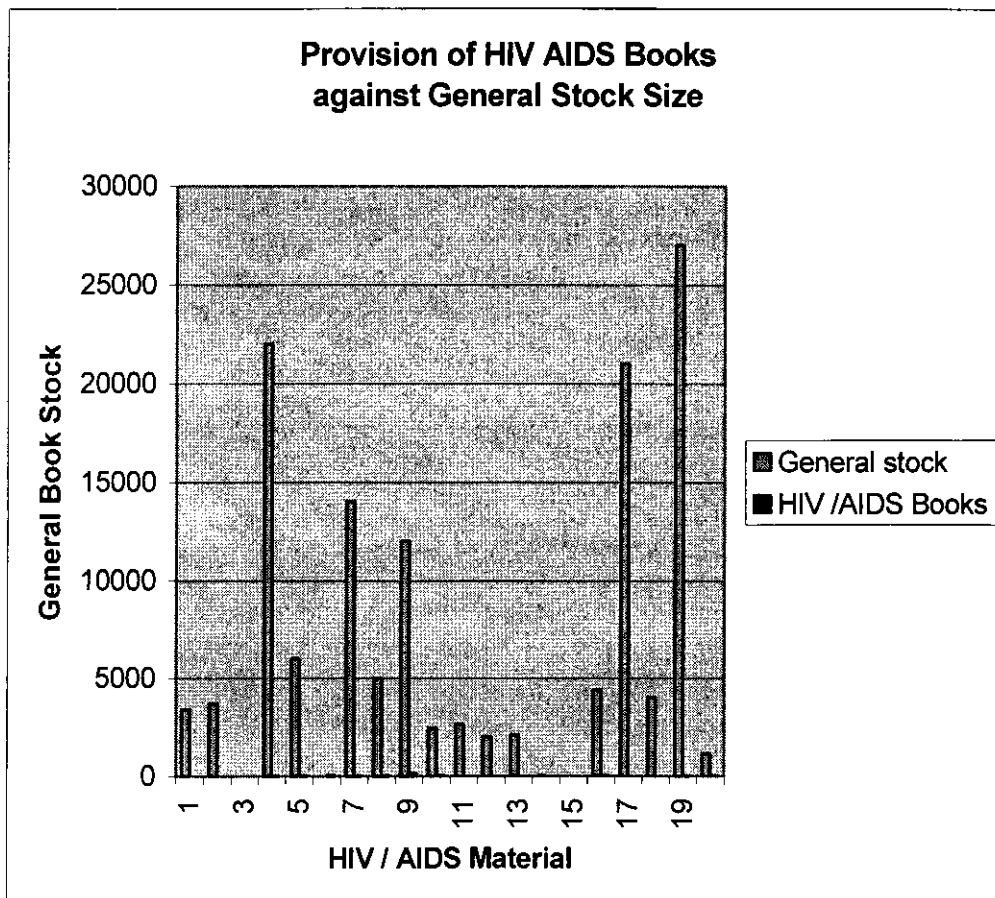


Fig. 5. The hardly visible shade of brown graph shows the meagreness of the HIV / AIDS material against the general book stock.



Conclusions Drawn from the Findings

- ◆ It is clear that there is insufficient provision of HIV / AIDS information resources in the in the school libraries.
- ◆ The other libraries (asterisked) that though they have their own users could be regarded as support libraries because they allow neighbouring schools reading access cannot offer much as their stock is insufficient even for their own users.
- ◆ It is also clear that ICT is not being explored an effective and viable means of carrying the message of the threat of HIV /AIDS to several people at once and in a more impacting manner.
- ◆ Many schools are trying different means of reaching their pupils with the HIV/ AIDS message but there is need for co-ordination.
- ◆ Knowledge sharing needs to be promoted: one school indicated that a local nurse was coming in to give talks, on weekly bases, but other schools were not aware of the need to share in the knowledge of the community.
- ◆ Not all school have Internet access, but information could be printed out and shared
- ◆ Information sharing is grossly wanting: posters freely distributed by various organisation are not known about by nearby institutions
- ◆ Information sharing is grossly lacking
- ◆ Expertise of the communities is not being seen as resource to be utilised.
- ◆ School Library policies need to address the HIV / AIDS Resource acquisition
- ◆ The proposed integration of HIV/AIDS issues across the school curriculum could be a golden opportunity which the library can support with acquisition of special collections as they would any new discipline into the curriculum
- ◆ Awareness must be created as to what is being published

Recommendations

- ◆ There should be created a local database of HIV / AIDS resources.
- ◆ Every school in Botswana (and any other country that sees the virus as the threat it is, must build up HIV /AIDS information corner in every school library / resource centre.
- ◆ Though the material due to natural classification is broken up by subject, genre and category it should be pulled together into a unit of special material.
- ◆ Periodically titles of available material, must be circulated by the different ministries, so that there would be ongoing awareness of what is available.
- ◆ The importance of information dissemination as crucial weapons in the war must be stressed at every opportunity.
- ◆ Workshops on how to create awareness corners need to be organised for teacher librarians and school librarians
- ◆ More easy readers should be developed (in association with publishers) that would make the information available to the younger readers.

Conclusion

The study was not as extensive as it could have been. It could have enquired into how often these HIV AIDS information sources were used. It could have interviewed students using the school facilities as to what they wanted by way of HIV / AIDS information. It could have investigated whether there was suspicion and stigma attributed to the borrowing of HIV /AIDS material. It could have investigated whether there was support material for the hurting who may have lost parents or other carers. It could have been extended beyond Botswana's

boarders, or even extended across the sub-Saharan region and a comparative investigation done. It could also be extended into a regional study, and become a project for IASL sub-Saharan Africa?

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Www.census.gov

TITLES THAT COULD BE ACQUIRED TO BUILD UP HIV / AIDS CORNERS

- ◆ Men, Culture and HIV/AIDS
- ◆ Men as care givers and fathers in a world of AIDS
- ◆ Handbook for legislators on HIV/AIDS, Law and Human Rights: Action to combat HIV/AIDS in view of its Devastating Human, economic and social impact.
- ◆ Report on the global HIV/AIDS epidemic: June 1998
- ◆ Situations and response Analysis of the urban youth project in Botswana: Draft Summary
- ◆ Fighting HIV related intolerance: Exposing the links between Racism, Stigma and Discrimination.
- ◆ AIDS epidemic update : Dec 2001
- ◆ A cultural approach to HIV/AIDS Prevention and Care: UNESCO/UNAIDS Research project report of the sub- regional workshop, Kampala Uganda- 8-12 May 2000.
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- ◆ A human approach to AIDS prevention at work: The Southern African Development Community's code on HIV/AIDS and Employment.
- ◆ Protocol for the identification of discrimination against people living with HIV.
- ◆ UNAIDS Compendium on Discrimination, Stigmatisation and Denial: Research studies from India and Uganda, and Comparative Analysis of the two studies.
- ◆ The AIDS curriculum: Badge curriculum of HIV/AIDS
- ◆ Together we can: Leadership in a world of AIDS.

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- ◆ Botswana towards National prosperity: Common Country Assessment of the UN agencies working in Botswana;

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- ◆ AIDS Ethical considerations in HIV preventive Vaccine Research
- ◆ The HIV/AIDS Epidemic- An Inherent Gender issue
- ◆ Working together towards a safer world
- ◆ Condoms and HIV prevention
- ◆ Boys, young men and HIV/AIDS
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Pippi's Pancakes - Culinary Jam Sessions in the School Library: The Library as an Educational Resource in Project-Based Learning

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Abstract

Project-based learning is a way of working which is gaining ground in Swedish schools. The Swedish Government has recently decreed that senior high school students must carry out a fairly extensive piece of research in the form of a project. The project has to be finished in one and a half years from preparatory planning to final presentation. Working with projects has now more clearly made the School Library in Sweden into an educational resource. In our seminar we will give you some idea of how project-based learning is being practised as teamwork between librarians, students and teachers in two Swedish senior high school libraries. We show how we guide teachers and students in our libraries, now well equipped with traditional media as well as modern technology. We will also point out specific problems that we meet and draw attention to new thinking about learning in modern society.

Introduction

A very famous literary character well known to all Swedish children and also to many children in the world is Pippi Longstocking. Do you know her?

The books about Pippi Longstocking are written by Astrid Lindgren, whom we believe to be one of the most admired Swedish authors in the world. Her books have been translated into a great many languages. A lot of people think she should have been given the Nobel Prize. She died this spring at the age of 94. Altogether she wrote almost one hundred books. Pippi was born in 1945 and this very special girl was something new in the literature for children in Sweden. The book became very controversial among critics, teachers and parents. Some loved Pippi and others hated her!

We loved her! We were both simply brought up with Pippi, her horse and monkey, Mr Nilsson. She served somehow as a model to us, not just to us girls but also to our brothers. She was so different! Pippi Longstocking is brave and strong, courageous and independent. And she knows how to make the most delicious pancakes! She can do whatever

she likes and she is rich. We think every child has now and then wished to be like Pippi, just as her two neighbouring friends Tommy and Annika did.

When rereading the books as grown-ups we find more that is characteristic of Pippi such as her way of being helpful to others and conscious of her responsibilities, her solidarity to people who are in need of sympathy, her joy in sharing with others her knowledge and the way she shows them respect. Not to forget her sense of humour and curiosity about life! In many ways she is more a young adult than a child, especially compared with her best friends. Tommy and Annika are not so mature as Pippi. They have good manners and are more submissive. They dare not tell anybody their own thoughts and don't show that they also have the right as children to interpret the world as they see it. Like Pippi does with her strong self-confidence!

When Astrid Lindgren died in January this year there were lots about her and her writings to read in the papers and to listen to on the Swedish radio and television. Many memories from our childhood were brought to light. As we reread the books about Pippi Longstocking it suddenly struck us that several of Pippi's characteristic features are those which our students need today: to be independent, creative learners with lots of self-confidence as well as a curious mind and a desire to learn. These are qualities you need especially when you enter Senior High School and are around 16 – 19 years old. We realised that both of us. How can we help our students to become somewhat like Pippi?, we said.

Today we demand that students should manage their schoolwork more independently, learn how to sort out and evaluate information in a critical way and express their thoughts with their own words, not copy word for word from books. We want them to make their own opinions, be curious and ask questions.

Just as Socrates and many other famous philosophers have done, Astrid Lindgren's Pippi tackles the great questions in life. Recently, by the way, two Norwegian philosophers wrote a book in which they make certain comparisons between Pippi and Socrates. They have found many things that the two of them have in common. They both put a lot of questions to people: What is justice? What is courage? What is in a word? They also ask such questions as we who work in the modern school put to our students: What is knowledge? How do we learn and what is important to know?

Socrates and Pippi seem to agree that we have knowledge when we have learnt something and made it our own. We understand and are familiar with the facts or the skill and are able to talk about them with others. Just like Pippi does in the company of Tommy and Annika and Socrates with his friends. They both teach us to be curious ("the unexamined life is not worth living", says Socrates), but also critical ("You must not let people put all kinds of things into your head!", Pippi says to Tommy. "Sometimes I tell so many lies that my tongue turns all black!")

The student must be active and control his own learning. In the modern school the teacher is not a walking encyclopaedia. This is how we interpret the new Project Course that was introduced into Swedish Senior High Schools in July 2000. Now the student should develop his/her ability to plan, structure and take responsibility for a fairly extensive piece of research in the form of a project. The student becomes the leader and the working process is as important as the result.

To cope with this kind of work our students must be a bit like Pippi Longstocking:
curious
critical
independent
brave
helpful,
kind, and
tolerant

This way of working may help them to become mature and independent individuals. It can lead to positive results for them in their private lives as well as in their functions as responsible citizens in modern society.

Background

From the year 2000 it is compulsory for all senior high school students in Sweden to carry out a certain amount of research as part of their learning. This task is expected to take about one and a half years in around one hundred working hours.

Normally, the research project should be connected with the programme chosen by the student. It can be carried out by a group of students working together, or achieved individually. Whether it is a theoretical or practical piece of work it must be presented together with a written report showing procedure as well as result and a final evaluation.

The aims of the project can be listed as follows:

The student must learn

- how to choose a field and define a particular problem within that field
- how to choose relevant materials and method as well as relevant tools
- how to make a plan for the project and if required revise it
- how to write a logbook about the work process and show the results continuously
- to discuss with his/her tutor how to proceed
- how to make a final product, which is a personal solution of the target set
- how to write a report describing the working process from idea to the final product
- and finally how to evaluate the procedure and result either in a specific report or in an oral presentation

A general model for the Project includes basic *ideas*, a *plan*, *procedure*, a *presentation* and an *evaluation*.

In the *plan* should be stated the reasons for the choice of project, a formulation of the particular problem to be tackled as well as a discussion of possible methods to achieve a solution. Ideas about where to look for the most useful information, how to choose fellow students willing to co-operate, and how to make a reasonable work- and time schedule are all equally essential. What kind of presentation to use at the end is also an important decision.

For the *production* of a satisfactory result it is necessary to collect relevant information as well as to arrange it properly. At this stage a logbook should be continuously

kept about how the work is progressing. The student should also see his or her tutor regularly.

The *presentation* can be either a written essay or an object or a practical method, but finally a written report must be presented, followed by an *evaluation*.

The School Librarian's Role

On many of these points the school library has a part to play. That is why the National Agency for Education in Sweden has taken the initiative to invite teachers and school librarians all over the country to attend courses at which ideas and methods for project-based learning have been presented and discussed. The school libraries in particular have been given a great deal of attention. Special grants have been allocated to school librarians to make sure that they attend the courses arranged at Swedish Universities in different parts of the country.

Both of us were lucky to attend last year's course together with quite a few teacher colleagues. For us Senior High School librarians it was truly stimulating to be accepted as fully competent members of a teaching team. No longer "warehouse workers" storing books and checking out book loans for students and teachers, but now partners in a team with the teachers contributing to the learning process and to what should actually be taught in the school.

We feel very excited about this new role! It is an historic change in the Swedish school! In an age with an overload of information it has become clearer that the library has an important part to play for student learning in all schools. Today it seems to us that the school library's focus is not only on the access of information resources and teaching information skills, but more on how the librarian's involvement in the curriculum can develop knowledge and understanding. The librarians can be seen as links between information and learning. They are there to support both teachers and students in the learning process.

Today we feel quite confident that many of the targets we aim at can be reached. The Swedish Government spend money on school librarians and we are mentioned in the Bill signed by the Minister of Finance! "Therefore the Government pays special attention to the development of the school library's educational role". Wow!

The more we get involved in the curriculum the more we become aware of the necessity of a new way of thinking as we are training the students in Information Literacy. We understand that there is no such thing as a subject called "Library Knowledge". Information Literacy is no general process that follows a strict order.

It is part of the learning process and it differs according to subjects and problems. As you most certainly understand from this theory we have been inspired by Dr Carol Kuhlthau's work on the Information Search Process. Many school librarians in Sweden talk about her today. Louise Limberg, who is our foremost expert in Library- and Information Science and Research was the first in Sweden to introduce Kuhlthau's theories about how important the stages of Exploration and Formulation are to learning within the process. In Louise's thesis "*Experiencing Information Seeking and Learning*" (1998) she is referring to Carol Kuhlthau.

What is the library 's function in the reformed Senior High School?

During the course about project-based learning at the University last year, there were these two questions that we especially tackled: What is the role as a librarian in project-based learning? How do we best co-operate with the teachers in this new course?

We were surprised that there was still so little written about the Information Search Process in the literature about PBL, for instance, and other activity-stimulating methods. It seemed to us that the school authorities in Sweden take it for granted that students know how to choose relevant materials and method as well as relevant tools. Too little was said in our course about training students in searching, sorting out information and being critical of their sources, especially those that they find on the Internet. Neither the librarian, nor the teacher is expected to stand there ready to serve project groups with relevant information. Instead students must be given lots of chances to learn efficient search strategies. This can also be of use for them in their private lives and later in their professions.

The students should not be left to drift aimlessly. Their tutors have to supervise them through the working process of a project and help them to structure it. The logbook is an excellent way to keep track of how they proceed.

In order to learn new things the students must go to different sources or experts to find out more about their subject. Step by step they learn how to ask the right questions to get the information they need and finally make it their own knowledge. Then it is time to do something about the knowledge, perhaps write it down in a report, create a piece of furniture, arrange an exhibition, carve a statue or make pancakes.

Then how will these delicious pancakes be, that we expect our students to serve us, when they have finished their projects? Our instructions, have they been good enough? Have we trusted them to be able to prepare the batter on their own, without much support? Some students manage to get a more fully flavoured batter, whereas that of other "cooks" is thin and running. Perhaps one explanation is that some students have been better trained to sort out and find the good ingredients? To be able to learn all students must be given more time to study the "recipe" carefully, time to search, sift and select information in all kinds of sources, but also time to evaluate and examine the facts. (*Who says what to whom and for what purpose?* Wiklund, 1999)

The adults around the student are the most valuable support! Teachers, librarians, parents and others. But they all have to co-operate! In the next section we will focus on how we as librarians in our schools can co-operate closely with the teachers in project-based learning.

The part played by the Library in our schools can be listed in five points:

1. A method course for students
2. Meeting with the tutors
3. Workshop in the library
4. Individual tutoring by school librarians
5. Support for the Project on the school library web page

1. A method course for students

The Method course initiates the senior project and takes place during the spring term of second year. The ten-hour course includes, among other things, the students' rough ideas and work plan. There is a total of nine units in this course and the library is involved in two of them.

In the unit called "*The library*" the librarian comes to the classroom for half an hour and describes to the students how the library's resources can be used in their projects. The following points are discussed:

- Process of information retrieval

The librarian talks with the students about the process. There is not only one way to go about it. The students may have to try different approaches. They are encouraged to spend a considerable effort in formulating their questions asking each other as many questions and follow-up questions as possible, so that they can eventually demarcate their work and identify keywords to be used in their research. They should ask the questions: why? what? who? where? how? when? They should look for connections, relationships, tendencies, origins, characteristic features in the chosen subject. As an example one can use a project dealing with a waste disposal works in Värmdö Municipality. The Waste Disposal Works is situated in a sensitive environment in the Stockholm archipelago and the company has now applied for permission to expand its operations. The students' task has been to make an investigation in order to analyse how an expansion would affect the environment. Stress is placed here on the use of relevant keywords to make the search process more effective and get appropriate sites.

- Workshop

As a regular programme the library offers workshops in Information Literacy at a fixed time every week. Students and staff can register whenever they need it. A tailored workshop can also be booked at a different time. The teacher or a group of students can ask the librarian to give an orientation in searching around a specific subject. In this kind of workshop the participants get an opportunity to train how to define a problem, to practise searching strategies and critical evaluation of sources. They continue to work independently with information seeking and special exercises guided by the librarian.

- Library rules

This is an orientation in the library about its organisation, rules and resources such as the staff, media and the computers connected to the Internet and how to use other libraries. The librarian explains to the students how the sources in the library can be valuable tools for them when they are working with their projects.

In the method course the librarian also participates in the unit "*Criticism of sources*". This training seems more important and necessary today because of the extensive use of the Internet as a source. For practical reasons these lessons often take place in a computer classroom. A lesson lasts for 1,5 hours. The starting point can be from the questions: who? what? aim? objectivity? current interest? Each student then goes on to look closely at several web sites. Afterwards follows a joint discussion. The question of who is responsible for a particular site has proved to be interesting. Even the web address can raise many queries. In what way can we be fooled on the Internet? A good example is if we compare the addresses *whitehouse.gov*, *whitehouse.net* and *whitehouse.com*. By getting the students to draw their own conclusions and become detectives "*Criticism of sources*" has become really enjoyable!

2. Meeting with the tutors

In today's school the teacher is not the only one who defines the questions or has the answers. Nor is he/she there in the classroom to spoon-feed the students. To be able to learn the student has to work on the material and make it his own knowledge. The teacher is at hand to support, answer questions and assist with research, just as the librarian does. The librarian is familiar with the information technology, the different sources and how to find them as well as evaluate them. In a close collaboration where the teacher and the librarian plan a unit together the students really get the opportunity to train the whole process that is required to be able to cope with a project independently. We find it very important for teachers and librarians to create a teamwork that can function for everyday use. We believe that with that kind of co-operation the students will get a better chance to do a good job and become critical thinkers and problem solvers.

3. Workshop in the library

When the student has chosen a topic and has made a plan for the project he/she can register for a workshop in the library. Attendance at a workshop is voluntary. However, the workshop is included as a point on the checklist that the tutors have made, so participation has a certain amount of importance for the final grade. The workshop takes place in the library. It usually lasts 90 minutes.

Preparing

When a project group (2-4 students) arranges a time for a workshop they then receive a questionnaire, which is to be handed in to the librarian before the workshop takes place. The questions are:

- What is your project about?
- Why have you chosen this particular project?
- How much do you already know about the subject?
- What exactly do you want to know about this subject?
- Make a list of as many keywords for your research as possible!

The purpose with these questions is of course to find the best and most relevant research terms. But they are also useful in helping the project group to demarcate and to formulate what exactly they are looking for. In addition, there is a follow-up of that which the students learnt in the method course. The questionnaire is an excellent aid for the librarian in preparing for the workshop.

Contents

- Discussion about questions and keywords.

To begin with the workshop takes place in a study room next to the library. It starts with a 20 minutes discussion about the questions mentioned above. The group with the librarian's help should now decide which research words they will use first.

- A run-through of how to find books, articles and how to use data bases and links in categories using the keywords. When appropriate, we also try to find current research, public authorities and private organisations within specific areas. We get acquainted with our own web site where support for students in project-based learning can be found.

- Criticism of sources

We examine one of the web sites with help from the critical questions. If it is accepted by the group, we agree about how to present it in the bibliography.

- Conclusion and questions
- Individual research in the library for half an hour with the librarian as tutor.

4. Individual tutoring by school librarians

The librarian also meets students working on projects in the library and can give them individual support when they need. It is important that the tutors co-operate with the librarian and that they have time to discuss the students' work together now and then.

The librarian can catch a student who is running behind or is stuck with a problem and then draw the tutor's attention to this.

Where in the school this prep work helping the students to prepare the batter (formulate and focus on a problem, discuss possible methods and sources etc) takes place, does not seem so important today, especially if the school has a virtual library as well as a traditional "warehouse". Very convenient is to have an extra meeting-room close to the library so that you can use both traditional media and the Net, when the students sign up for a workshop.

Time for thinking and evaluation in groups is very valuable for both teachers, librarians as well as for students. In our schools we realise more and more that meetings for planning, discussion and evaluation are of great importance for finding new ways in teamwork. As librarians we would like to be more involved in the final presentations and evaluations of the projects, but if you are the only librarian at a school with more than 1000 students this is quite impossible.

5. Support for the project on the school library web page

On the school library web page the students can find valuable support when working with their tasks. There is a site where they can get inspiration as well as practical advice such as how to cite sources and make a reference list. The school's web page is easy to grasp for students and teachers in need of ideas for strategic information searching and source evaluation. Here they will find a checklist for young researchers, help for searchers on the Net, FAQ, questions for criticism and other useful links about working with projects. A very useful site, for instance is "Check the Source" provided by the Swedish School Net and run by the National Agency for Education in Sweden. www.skolverket.se/skolnet/english/

Looking forward

In a delicate balance between strict control and free thoughts you probably find the most favourable learning situation. Just like Pippi we want to give our students freedom to think for themselves and draw their own conclusions and at the same time expect them to structure and take responsibility for a project – that is to say become the manager of the Senior Project in their third grade. We want them to learn the ability how to co-operate and how to show their fellow students respect. At the same time we think it is right to give them a chance to choose their research project according to interest and talent. We believe in the students' silent yearning to use both their brains and their hands. One goal must be to make them feel a desire to learn and a joy to share their knowledge with friends and others around them.

Another goal must be that teachers, librarians and principals join in establishing good and creative learning "kitchens", where the students experience that it is both useful and fun to make "pancakes". May they realise that what is most essential is not the finished pancake,

but the road taken to reach the goal and all the necessary preparations before beating the batter into shape!

This reminds us of a poem we learnt when we were students in Senior High School in the 60s. With this poem by another very famous Swedish author, Karin Boye (1900 - 1941) we wish to end our presentation.

On the move

The sated day, it shouldn't get a first.
More stunning is by far a day of thirst.

Life's journey has, it seems, a secret goal.
The road means more than does the last control.

The finest stop-off is a one-night halt:
A fire's lit and shared some bread that's brought.

In places where we pitch our camp but once
Our sleep is sound, our dreams are full of dance.

"Move on, move on!" we hear the new day call.
A venture without end awaits us all.

Karin Boye's poem *I rörelse*
translated by Hans Andersson

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When *Wife* Meets *Mother*: Norwegian School Libraries - An Arena For Teacher/Librarian Identity Conflicts

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Abstract

This article explores various reasons for the lack of school library services in Norwegian primary schools. The basic thesis is that libraries and primary schools have developed differently despite sharing common origins from the European Age of Enlightenment. Libraries and library work can be seen as belonging to a masculine metaphor, primary schools and teaching can be seen as belonging to a feminine metaphor. These metaphors reflect traditions and attitudes that affect everything from basic democratic ideologies to ways in which we relate to classroom space and library space, as well as the ways in which teachers and librarians organize and advocate for working conditions. This causes conflicts in defining the role of the teacher-librarian and the school library in Norwegian primary schools.

The goal of this paper is to present conflicts between teachers and librarians about school library services in a new light. My interest in this problem started ten years ago when I began work as the library director in a small rural town. One of the rooms in the local school was used as the school library. When I extended the public library services to include services to schools it became evident that there were misunderstandings and disagreements with the teachers and school administration about what my role should be. This puzzled me, and to understand the reasons for these misunderstandings, I realized I needed to examine my assumptions about Norway.

I grew up in a middle class town outside of New York City. There were school librarians and libraries in all the primary and secondary schools. Naively, I assumed the situation would be the same in Norway. After all, Norway is one of the richest countries in the world. Its wealth is funneled into a bureaucratic system that aims to provide a decent standard of living, health and social services and education to all its inhabitants, whether or not they are citizens. Norway has one of the highest levels of education and literacy in the world and its reputation for promoting democracy is well known. Everything considered, it seemed to me that Norway would have a well-developed school library tradition, and teachers who integrated school library services into their teaching.

Sadly, this is not so. Statistics from the year 2000 show that students in primary schools (age 6 to 16) only have access to school librarians 1.8 hours a day. There are 577,363 primary school students in Norway, but only 552 people with a library degree working in primary schools. Statistics do not specify whether these people are working as librarians or not. (Norwegian Directorate for Public Libraries, 2001) In the PISA survey conducted in

2000, Norwegian 15 year olds received only average scores in reading, mathematical and cross-curriculum activities, a result the Minister of Education found «disconcerting» (Clemet, 2002). A study conducted in 2001 shows that despite the 1997 education reform that lowered the school age from 7 to 6 years old, Norwegian 3rd graders are weaker readers than their pre-reform counterparts (Norwegian Board of Education, 2001)

To librarians, there is an obvious connection between the lack of library services to school children and average to poor achievements on national and international education tests. But it seems that school politicians, educators and the Norwegian ministry of education have other priorities than library services when allocating funding to schools.

In order to gain some insight into why a country which has the technological, economic and intellectual resources necessary to provide world-class school libraries, does not recognize the connection between libraries and students' academic achievements, I needed to approach this issue from three different perspectives: from the perspective of control and democracy in the development of public libraries and primary schools, from the perspective of teaching and librarianship as female professions, and from the perspective of gender-based identities of teachers and librarians.

Democracy and control

Cultures and societies take form as we try to make sense of our lives. We do this by creating similarities and differences: Sweet or sour, comfort or discomfort, friend or enemy. Social anthropologist Jorunn Solheim says that the most fundamental difference we use in organizing our lives is that between our understanding of *masculine* and *feminine*. The meanings we give these terms function as metaphors. They create a symbolic universe that both subtly and openly defines our society (Solheim, 1998).

Solheim says that ideas we connect with the masculine have to do with distance, objectivity, analysis and closure. The feminine metaphor connotes intimacy, subjectivity, intuition and openness. She theorizes further that ideas of "sameness" depend on intimacy and subjectivity. I can only be intimate with those with whom I feel similar. My feelings of similarity are based on subjective perspectives. Ideas of "difference" or "individuality", however, are based on distance and objective perceptions. Individuality belongs to the masculine metaphor, as sameness belongs to the feminine metaphor. These metaphors are useful in understanding the inherent tensions in democracy. We can also apply these metaphors to libraries and schools, institutions that claim legitimacy through the role they play in democracy.

Norway, like many European countries, is an old country, yet a relatively young nation. Norway was a Danish colony for 400 years, from the 1400's until 1814, when it became a Swedish colony until its independence in 1905. The population has always been small. Today it is nearly 4.5 million- just a little more than half the population of New York City. This population is spread over nearly 234,000 sq. kilometers. The Norwegian landscape is rugged and mountainous which has contributed to a culture based on small, isolated communities.

The combination of a small, homogenous population, a rugged geography and independent farmers has played an important role in Norway's cultural history. We can

suggest that the basis for trust, unity and cooperation has grown out of small, homogenous groups whose members shared a deep tacit knowledge of each other. On the other hand, because most communities were isolated from each other, independent, local identities developed, reflected in dialect, music, folk art and local tradition. These elements contribute to a Norwegian paradox: «sameness» as a fundament of society, yet a strong belief in a natural given «individuality». The Norwegian icon Thor Heyerdahl is a good example of the latter.

Like the majority of western countries, Norwegian schools and public libraries have shared origins in the Age of Enlightenment. To date, historical research done on Norwegian school libraries has focused on continuity and progress. School libraries have been traced back to book collections in the first secondary schools (16-20 year olds) located in Christiania (Oslo) in the 1700's (Gloppe, 1994). The research has seldom focused on the slow paced development, the organization of school libraries, or the lack of school librarians. The school library – public library connection in Norway is prescribed by law. While the Education Act requires all schools to have a library and “someone” responsible for that library, the Public Library Act requires the public library to provide consulting services to the school library. Both require cooperation agreements between the two institutions. Furthermore, the Municipal Act gives each municipality the right to create joint libraries, instead of separate school- and public libraries. In her doctoral thesis, Elisabeth T. Rafste points out that an important difference in the development of school library services in Norway compared with the United States, is that school libraries in Norway are closely associated to public libraries, while in the U.S., they are quite separate from the public library (Rafste, 2001).

Advocates of both schools and libraries base these institutions' legitimacy on the historic and current role they play in supporting democracy. Yet democracy can be implemented and understood in many ways. Democracy can be promoted through ideas of “sameness”: common background, common values, common goals. These commonalities provide a stability that again gives room for the free exchange of ideas. Democracy can also be promoted through ideas about “equal opportunity” and “equal access”. The focus, in that case, will be on providing equal opportunity despite differences. All democracies combine ideas of sameness and difference. The combination is what keeps democracies from falling into either fascism or anarchy. Yet the institutions of democracy can reflect more of the one kind than the other. This may have to do with whether the institution itself responds more to the masculine metaphor or the feminine metaphor. The goals of Norwegian schools stipulated in the Education Act, are *sameness, intimacy, culture and usefulness*. The goals for public libraries, stipulated in the Library Act are *equal access, privacy, culture and usefulness*. I suggest that the goals of Norwegian primary schools belong to the feminine metaphor, while the goals of public libraries belong to the masculine metaphor.

In understanding differences between public libraries and public schools it is important to look back to the 1900's. The situation in Norway differed from that in continental Europe and the United States, where one can see Romanticism as both a progression from, - and a reaction to The Age of Enlightenment. Ideologies from the Age of Enlightenment: the concept of the individual, rational thought, and a break with tradition, became tightly entwined with ideologies from Romanticism: tradition, emotionality, and inner development. (Slagstad, 2000). Both public schools and public libraries tried to embrace all of these conflicting ideas. Juggling conflicting approaches is complicated at any time, but in Norway in the early 1900's it was even more so. Debates were carried on about

which language should be used, Riksmåal, closely related to Danish, or Landsmaal, a constructed language based on Norwegian dialects. There were debates about how Norwegian independence should be achieved, and what form it should have. – Should Norway be a republic or a monarchy? There were debates about women's rights, socialism, and temperance.

In light of all the opposing voices facing the Norwegian population at that time it is not surprising that schools maintained and strengthened their role as a unifying source. The "same" school and the "same" education for Norway's children, has remained the ideal for Norwegian primary education to this day. Reasons for this "enhetsskole", or "unifying school", once connected to creating a nation and a "Norwegian" identity, are now connected to preserving a national identity, as well as building healthy individual identities in the face of a rapidly changing world. (National Primary Education Curriculum for 1997).

Public libraries of the early 1900's, inspired by developments in English and American libraries, developed a platform as the guardian of democracy. One of the influences in this development was the public library's close association with the Association for Popular Education, founded in 1851 (Vestheim, 1997). The compatibility between these two institutions was grounded in ideas of life-long education, and citizen's rights to information and knowledge regardless of social standing. This last point was deeply rooted in the ideologies of all the social movements (temperance, independence, etc.) referred to above. Public libraries have, at least in the minds of librarians, always been associated with the idea of life-long learning and non-interference in people's intellectual life. Research shows however, that Norwegian public libraries in the early 1900's were based on middle-class, philanthropic ideals. Among other things, there were clear ideas about suitable and unsuitable literature for library collections and until the advent of open shelving, library users' requests were also subject to librarians' scrutiny. (Ringdal, 1985) Yet, the early part of the 20th century was a time of library reform. Norwegian public librarians were enthusiastic about developments in Anglo-American library practices. Between 1900 and 1920 (ibid.), 90 Norwegians, most of them women, received their library education in the United States.

The returning "America-librarians" brought with them many new ideas, among which was the close connection between libraries and schools. The editor of *For folkeopplysning* wrote,

One knows that in England and America, countries where public libraries have obtained the highest professional standards, schools and libraries are intimately associated. The library is considered an integral part of the educational system on an equal footing with the schools. The schools provide the foundation, but the library provides a school for every individual, for the rest of his life." (For folkeopplysning IV 1919 s. 82).

Nils Ringdal suggests that ideas from the United States, among them the idea of library services designed for children, played an important part in librarians taking over the role as advocates for school libraries from teachers (Ringdal, 1985). I believe another impetus was that public libraries were losing status at this time, an idea I will return to later in this paper. Perhaps part of the enthusiasm discernible in the editor of *For folkeopplysning* comments reflects a need to associate Norwegian public libraries with the "success" of those in America. Clearly, Norwegian public libraries felt the need to be associated with schools in

order to strengthen their legitimacy. Perhaps this is why whether the public library was the kind of library public schools needed was never questioned.

The early 1900's was also a time for school reforms. Anne Sethne and others were inspired by new educational theories emphasizing learning through activity, both as ways an educational method, as well as a way of socializing students. (Dokka, 1988 and Hagemann, 1992) Norwegian education and library reformers were certainly responsive to ideas of modernity: the individual, differentiation, belief in progress. On many levels their goals and methods were compatible. Yet, while educators promoted the idea of young students' inner growth through reading and discovery, the application of these goals, the library, did not develop within the school context.

Many educators, Anne Sethne among them, called for the development of school libraries, but it was the public librarians who took up the torch. Public librarians felt they had a mission. One of them was to save children from ignorance, another to save them from the rigidity of the current school system. The Buskerud County library inspector wrote, " School library collections are of the utmost importance for the child's spiritual development, while attending school..."(Fylkesinspektøren for Buskerud, 1920, p.108).

Another librarian writing to *For folkeopplysning* waxed poetic on the topic,
 Children are to us like the blessed Spring which we must all protect. So easily does frost encroach upon the child's soul, this frost is our greatest concern. Let the mission of all libraries in this country be to protect this blessed Spring, weakening forever the grip of the freezing night." (For Folkeopplysning. V 1920, s. 66).

These objectives were shared by many educational reformers of the day, and since they worked within the educational system, they could realize their mission in many different ways. Public librarians, working outside of the educational system could only comment on and advocate for school libraries. In doing this, they transferred ideals from the public library sphere to the school library. They believed that children's use of school libraries would be a guarantee for their later use of the public library. Perhaps cultivating future public library users was more important to public librarians than developing libraries that would help schools achieve their educational goals.

Since 1935 it has been a legal requirement that Norwegian public schools have school libraries. Yet only a few municipalities¹ have implemented it. This, I believe, is partly due to the metaphorical differences between the two institutions. The "masculine" individualistic ideals that the public library can practice are difficult to unite with the school's "feminine" collective goals.

The Norwegian minister of education, Kristin Clemet, a right-wing politician is currently implementing education reforms with a clear liberal-instrumental profile, one that potentially undermines the school's collective goals. It will be interesting to see if this has any effect on the development of primary school library services.

Professional conflicts

Understanding the development of the teaching and librarian professions is also an important factor in understanding the development of school library services. New theories on professionalism still refer to William Goode's trait or characteristics theory, published in 1969. Goode's theory states that professions are based on abstract knowledge that a society believes provides solutions to actual problems. Only those holding this knowledge can practice it. Professions organize, develop and transmit this knowledge, and are the sole judge of the implementation of this knowledge. There is a kind of "mystery" connected to the attaining of this knowledge. Furthermore, there are certain service ideals to be fulfilled: The practitioner decides his or her clients needs, there is an element of sacrifice, or a "call" mentality- even to the point of risking one's life for the profession's ideals. Finally, the professional society has some ethical code by which both society at large and the professions own members are expected to live. Goode classified primary school teaching and all forms of librarianship as semi-professions, since neither of these occupations fulfills all the characteristics listed in his theory.

Roma M. Harris points out that theories of Goode and others who attempt to define what makes some occupations "professional" and others "vocational" or "semi-professional" are flawed as long as they do not also take into account the specific way in which female dominated occupations have been understood and valued by society (Harris, 1992). One of Harris' main points is the dilemma librarians face when searching for status within their respective fields. The "career path" often leads women away from their users and into administrative positions. This creates a conflict in the service and knowledge based criteria for professions. Within the library field we also see more status and pay given to librarians working in computer-related areas, while those librarians working with the general public, especially those working with children, have the least chance for career advancement. This is reflected in developments in Norwegian library education. A master's degree in library science is only available through Oslo University College. The program focuses on information organization and retrieval². There is no higher degree offered through the Oslo University College in library work with children, in schools, literature and media knowledge or library sociology, although all these areas would fulfill Goode's "service" criteria.

One final point in Harris' critic of Goode is the role played by unions and interest organizations. Harris states that the impetus for professionalism is dissatisfaction with salary. Occupations try to achieve more status and salary through two different routes, unionization or professionalism. She points out that many teacher and nursing organizations in the United States have interest organizations that operate similarly to unions. Librarians and social workers, on the other hand, rely on interest organizations that disassociate themselves from unions. This pattern is recognizable in Norway as well.

There has been little research done on the development of the librarian profession in Norway. Yet, we can get an idea of the development of library profession by looking Norwegian library history. It becomes clear that women were wanted as cheap labor, while their credentials were less in demand.

By the early 1900's women dominated the library field in Norway. Many of them had traveled to the United States for their education. We can assume that the majority came from middle class backgrounds, since an American education was an expensive undertaking

(Ringdal, 1985). Many Norwegian women librarians returning from the United States found that their competency was not always valued in the same way as that of their male counterparts. The professional certification these women acquired was compared to other alternatives, like internships at the University Library. These internships attracted men, or perhaps were only open to men through an "old boys" network. Several important names in Norwegian library history, Nils Hjartøy and Wilhem Munthe among them, criticized women librarians with American education for being technicians, instead of well-oriented intellectuals. In 1918 Hjartøy accused women librarians of holding library wages down, "Library work is seen by many as some sort of suitable charity work [...] Young daughters of rich bourgeois pappas think this must be the ideal past time for them while they wait to be married" (Ringdal, s. 143). 18 years later Hjartøy was still concerned with the "negative" influence women had on the library profession. In one of the most central political documents in Norwegian library history he stated, "Certified librarians in public libraries are most often ladies from a conservative middle-class background. They tend to have conservative values. Many of them are not in the least interested in current events, or the enormous societal problems most people concern themselves with." (1936). Hjartøy was a dynamic innovator for Norwegian libraries. He was closely involved in the Social Democratic Party (Arbeiderpartiet), which was rising to power at this time. His attitude reflects several things not least class conflict between the "middle-class ladies" and workers. He was, however, blind to the discrimination these "ladies" were subjected to. They had little access to positions in the university library, and their middle-class mores made agitating for higher wages unthinkable. Perhaps women entering the field of librarianship were only able to reconcile their role as middle-class women with their role in the labor force through interest organizations that spoke to the legitimacy of the institution in which they worked, but not to their specific legitimacy as working women.

Furthermore, library work is "masculine" work. It is work based on analysis and organization, and its ethical code is based on distance, or non-interference in other's intellectual pursuits. Female librarians may have chafed under the discrimination they were subjected to, but their gender gave them no specific claim to the field of librarianship, and their small number may have caused them to view their lower wages and lack of advancement as a result of their own inferiority, or as symptomatic of the general treatment of public libraries, but not as a result of gender discrimination. If this is so, then today's working conditions for librarians in Norway is still influenced by the gender and class values of the previous century.

The history of teacher's organizations in Norway is a long one, starting in the 1830's. Teacher's organizations were influenced by conservative values as well as socialist ideologies. Motivation for organization came from feelings of discrimination as well as the desire to implement school reforms, whether they were inspired from the growing field of developmental psychology (Hagemann, 1992) or Eastern Europe's "learning through working" theories of education. (Tøsse, 1997 and 1998). While I have suggested that librarians had no specific "gender-claim" to their field, and that this affected their motivation for organizing, female teachers could make gender-specific claims to the field of teaching, not least to certain school reforms. This has influenced the way teachers have organized their profession.

Although women taught as early as in 1632, they were first allowed by law to teach young children in rural schools from 1860 (Hagemann, 1992). At the same time different laws

were ratified in the cities that slowly gave women access to teaching in city schools. However, women's access to teaching posts in the cities increased more as a result of urbanization, a growing population and the need for cheaper labor, than as a result of a change in thinking. In 1870, 29% of all teachers in city schools were female, by 1890 the percentage of female teachers in these schools had increased to 62% (*ibid.*). Yet the teaching posts open for women were different than those for men and advancement possibilities were limited. Money saved on lower wages for female teachers, was used to give raises to male teachers. Women had to pay for attending teacher certification programs, while men could attend teacher-training colleges free of charge. The fee requirement for women must have had the same filtering effect that educational costs for librarians had, making early teaching and librarian posts far more accessible for middle-class women than working class women. In this way librarians and teachers in the early 1900's came from similar backgrounds, although the development of their professional identities followed different paths.

Differences between the teacher population and the librarian population must have contributed to their beliefs about their professions and their motivation for organization. One obvious difference is that there were more teachers than librarians. For those working with colleagues it is possible to discuss, compare, refute and support ideas and attitudes. The majority of women teachers lived and worked in cities. Their shared experience of discrimination led them to break out of the teacher's union in 1911 and form their own. Many of these women were also active in the Norwegian women's movement, which had women's right to higher education and the vote as two important issues. These women were aware of their female identity and how it affected their daily lives. Their will to organize was motivated by this awareness. At the same time education reforms were focusing on children's learning potential rather than children as learning automatons. Anna Sethne was one of the spearheads for these reforms as well as the leader for the Norwegian Women Teacher's Association for 20 years. Perhaps it is possible to say that in the early 1900's elementary school teaching in Norway was not only becoming a female field, it was a field in harmony with society's values for and perception of middle-class women. This gave room and a voice to women teachers that they were able to use in fighting for their legitimacy as educated working women.

There are implications that teachers were gaining status as librarians began to lose status. School reforms in the early 1900's created a need for more teachers in both rural and urban areas. In 1901 laws were passed allowing women to matriculate in teacher training colleges. This change was in part due to the growing need for teachers. Schools were seen as instrumental in creating "Norwegian citizens", and teachers played a key role in this.

Libraries on the other hand were fighting for funding, governmental recognition, and the establishment of a Norwegian library school, something that would not happen until 1940 (Vestheim, 1997). The struggle for library recognition at the same time as schools and teachers were receiving greater attention may have seemed strange and even unfair to librarians. After all, both groups claimed they played key roles in democracy, and librarians had more education than most teachers. A completed secondary education (Examen Artium, completed between the age of 19 and 20) was required for either studying at a library school in the United States, or for a library internship at the university library. In Norway in the early 1900's this was considered a high level of education. This requirement also acted as a filter, making library work more accessible for the middle class than the working class (Vestheim, 1997). A nine year education was the only requirement for attending teacher training college.

This was a four year program, so the total education was not less than for librarians. However, the lower entrance requirements meant a wider pool of candidates. Many male students came from rural and worker backgrounds, while women, who had to pay for their training at separate schools, came mostly from middle class homes (Hagemann, 1992). Differences in education, possibly class background and the perception of declining status may have contributed to the disdainful comments in appearing in articles in the library periodicals *For folkeopplysning* and *For folke- og barneboksamling*, in the early 1900's. One librarian writing from a small public library said,

For he [the ideal teacher] will place the greatest emphasis on joining together the school and the library in a common goal. If attempts at this fail, it will in nine out of ten instances, be due to the teacher's lack of understanding, in which case it can be a good thing to shake up the teacher's ideas about libraries (Ansteinsson, 1917, p. 70).

Teachers were also critical of librarians. In 1911, a group of teachers delivered a letter to Deichmansk library director Haakon Nyhuus complaining about the type of literature delivered to the schools. This literature was chosen by the *Central Committee for Norwegian primary schools*, which the teachers referred to as "The many-headed beast known as the "Central Committee" [...] ", and suggested that it "should be retired to a quiet corner somewhere ..." (Ringdal, 1985, p. 162). Ringdal also states that "Haakon Nyhuus had with some justification viewed primary school libraries as rival institutions..." (ibid).

Why did libraries begin to lose status as more women became involved in library work, while schools retained status? Part of the answer lies in the way arguments for the practice of and legitimacy of each profession harmonize with society's view's on gender appropriate activities.

Norwegian public education based its legitimacy on a platform of "sameness" as guarantee for democracy. The goal was not only the same education, but common identity and common values as well. The school was seen as an institution where identities were formed, and to achieve this a certain amount of intimacy with students was required. In government papers preceding the latest school reform, in national curriculum plans and other documents, primary education continues to base its legitimacy on its role as a cultivator of democracy, "Primary school education...shall promote equality, intellectual freedom and tolerance...", and "... education shall ... strengthen a common knowledge, cultural and value basis..." (Education Act, 1998). The goals of the Education Act are to be achieved through close cooperation with each student's home. The rhetoric in this law and other documents is laced with feminine values and ideas of fostering. The national curriculum uses the word *upbringing* nearly as often as *teaching* and *knowledge*. Based on this we can say that primary schools in Norway belong to the female metaphor.

Another route to democracy is the "every man for himself" path. A definition of equal opportunity and equal access is arrived at and citizens are expected to do their best, without institutional involvement or identity forming. The Norwegian Public Library Act states that the goal of the public library is to "promote enlightenment, education and other cultural activities...to all those who live in Norway." (The Public Library Act, 1985). The main focus of Norwegian library education is on information organization and retrieval, while other areas such as library sociology and literature sociology receive less focus. Based on this, it can be said that activities we assign male values to: analysis and organization are core elements in

Norwegian library education. The library's institutional legitimacy, grounded in its role in a democratic society, though not as clearly expressed in masculine terms as the school's legitimacy is expressed in female terms, can still be seen as a "masculine" institution. The law states that public libraries are to promote cultural activities, which is something other than the common cultural basis the school law aims for. Libraries promote diversity and provide information as the basis for debate and an exchange of ideas. Debate and the exchange of ideas are connected to the public domain- which we again know is the masculine domain, while the school, the classroom, and its legally decreed connection with "the home" are connected to the feminine, domestic sphere.

Wife And Mother

According to Jorunn Solheim, the *Mother* is modern western culture's metaphor against which women are measured, and measure themselves (1998). Viewed in this way we can understand the success of female professions as the degree in which they match the *Mother*. Teachers not only work within a *feminine* institution, the way in which they perform their work, and the way educational goals are defined by legal and educational institutions fit notions of gender appropriate behavior. We see this in activities that "domesticate the classroom" such as craft activities in connection with holidays (Bilken, 1995), in the teacher's evaluation of students' knowledge *as well as* behavior, and quite clearly in the teacher's close contact with and responsibility for children. The harmony between the metaphorical *Mother*, teacher's understanding and performance of their job, and the school's institutional feminine rhetoric in legal documents all contribute to creating strong institutional and professional identities.

The public library and public librarians do not have similar strong institutional or professional identities. One obvious explanation for this is that librarians are always in a minority position at work, which makes them outsiders. But they are also "outsiders" within the context of gender appropriate work. Both the work - analysis and organization, and the library institution belong to the masculine metaphor. I suggest that there is a conflict between the female librarian profession and librarianship and the library understood as masculine activity and institution. In attempting to reconcile this conflict librarians have developed a specific "assistant" identity that can be metaphorically expressed as the *Wife*. Library discourse conceals this from us in many different ways. For example, librarian ethics value non-judgmental attitudes in library user's use of library resources. This becomes obvious in debates concerning free access to information on the Internet. These attitudes are understood as a protection of user's privacy and democratic rights. Incorporating both popular and canonical ideas of "quality" in collection development policies is understood as an acknowledgement of diversity and equality. Yet, providing on a user demand basis is also the action of an assistant, one who's only job it is to provide, not to evaluate. We know that librarians do in fact evaluate and censor. Yet these actions are performed outside the public scrutiny, and, at least in Norwegian libraries, the majority of discussions and debates on these issues are kept "in the kitchen". The combination of loyalty to the library's institutional goals, and concealing the actual work it takes to meet these goals is like the wife's seemingly effortless, yet constant loyal support of her husband's needs. It contributes to keeping librarians active in the public sphere without threatening society's ideas of women's competency and ability to implement decisions.

One of Solheim's main points is that women have different possibilities to define boundaries than men. A mother can define boundaries for her children, although children constantly debate these boundaries. But a wife cannot define her husband's boundaries, although he often defines hers. Boundaries are a conflict area in the school library. Elisabeth Rafste discovered that high school libraries in Norway were "porous". The room was used for everything from traditional library activities, to a canteen (Rafste, 2001). In Cynthia Giorgis' study it was apparent that some teachers felt they had as much right to define the library space as the librarian herself (Giorgis, 1994). Teachers can call children in to class and send them out. Librarians however, cannot shut their doors. Rafste also discovered that teachers defined the premises for teacher-librarian cooperation in high school libraries, something Giorgis' study and other studies support.

Librarians who try to participate on an equal footing with teachers meet challenges on several levels. Incorporating the "masculine" aspects of librarian identity: Privacy, diversity, analysis and organization into the "female" aspects of teacher identity: intimacy, sameness, and fostering threatens our basic need for separating the masculine from the feminine. It introduces different ways of thinking about intellectual freedom and growth, different skill needs for finding information, and ultimately different goals for education. These goals would perhaps remove the idea of "sameness" from Norwegian primary education ideolog Teachers and librarians would have to reexamine the ideas and traditions each job is based on, especially the ways in which each job has formed specific ways of meeting gender expectations. This is quite a challenge in a country that prides itself on gender equality. Yet if we do not take a close look at these issues, school libraries will never become "the heart of the school", as they were proclaimed in 1967 (Gloppe, 1994).

It is not up to the librarian or the teacher alone, to bring about the changes that would vitalize school library services. I hope that this discussion has shown that hindrances to necessary change exist on every level, from the institutional to the existential. Librarians need to explore their own history. Recent research continues to tell a story of progress, loyalty and selflessness. Our "library heroes" are men. No one seems to question the non-union profile of the Norwegian Library Association, nor does anyone question why public school libraries continue to reproduce the public library in schools instead of functioning as small research libraries. This is reflected in the fact that the Minister of Education focuses on issues of direct relevance to library services, like research skills, computer skills and cross-curriculum activities, without ever mentioning either school libraries or librarians as necessary in meeting education goals related to these areas. Teachers need to consider how their work can be enriched by viewing school librarians as partners in teaching. An important step towards this goal is teachers and librarians freeing themselves from the roles of mother and wife, so they can work together in promoting learning among young people in different, yet equally important ways.

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¹ Each municipal school has a room with books. However, collection management and services are neglected in many (the majority?) of these schools.

² The program is presented online at this address: <http://www.hio.no/index.php3?malgr=e>

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