

THE UNIVERSITY OF ALBERTA

THE VIRTUAL SCHOOL LIBR@RY WEB SITE:  
A NECESSITY FOR TODAY'S SCHOOL LIBRARY

BY

JOANIE PROSKE

This capping Course Document is Submitted in Partial  
Fulfillment of the Requirement for the Degree of

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A NECESSITY FOR TODAY'S SCHOOL LIBRARY

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UNIVERSITY OF ALBERTA

DEPARTMENT OF ELEMENTARY EDUCATION

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Submitted by Joanie Proske

In Partial Fulfillment of the Requirements for the Degree of Master of Education

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Dr. Julia Ellis

Capping Course Instructor

April 15, 2010

## DEDICATION

*To my amazing family –*

Henry, you've been such a supportive husband throughout this whole academic pursuit. Thanks for listening to my stories, delivering cups of tea, trying to cook dinner, taping the episodes of *So You Think You Can Dance* I missed, and for picking up the slack when I was desperate to meet a deadline. I apologize again for abandoning you countless evenings as I worked on eClass. You have been so patient, loving, and encouraging. You keep me grounded – you are the best! I could never have accomplished this Masters without you, honey!

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## TABLE OF CONTENTS

### Introduction

<i>Becoming a Secondary School Teacher-Librarian</i> .....	6
<i>Identifying Library Program Concerns</i> .....	6
<i>Teacher-Librarian Program Leads to Interest in School Library Web Sites</i> .....	7
<i>Exploring the Nature of School Library Web Sites</i> .....	7
<i>More Possibilities for Virtual School Libraries</i> .....	8
<i>Structuring my Investigations about Virtual School Libraries</i> .....	9

### Literature Review

<i>Enhancing the Learning Priorities of Today's School Library Programs</i> .....	10
<i>How Have School Library Programs Changed for 21<sup>st</sup> Century Learners?</i> .....	10
<i>What is the Role of the Teacher-Librarian in the 21<sup>st</sup> Century?</i> .....	12
<i>What is the Definition of a Virtual School Library?</i> .....	14
<i>Why Should the Physical School Library Extend to Include a Virtual Presence?</i> .....	15
<i>Is Collaborative Involvement an Essential Consideration?</i> .....	17
<i>How Can the Virtual School Library Actively Promote Library Program Objectives?</i> .....	18
<i>How Can the Virtual School Library Connect Students with Quality Resources?</i> .....	19
<i>How Can Teacher-Librarians be Instrumental in Promoting Information Literacy Instruction?</i> .....	21
<i>How Can the Virtual School Library Promote Successful Information Seeking Behaviour?</i> .....	21
<i>How Can the Virtual School Library Support Students with Individualized Needs?</i> .....	23
<i>What are the Further Benefits of Establishing a Virtual School Library?</i> .....	25

<i>What Considerations Make an Exemplary Virtual School Library?</i> .....	26
<i>Are There Existing Exemplars to Serve as Web Site Design Guides?</i> .....	27
<i>Are Strategic Plans Available to Assist Web Site Development?</i> .....	28
<i>How Can the Effectiveness of the Virtual School Library be Determined?</i> .....	29
<i>What are Future Predictions about the Virtual School Library?</i> .....	31
<i>Summary</i> .....	32
<b>Implications</b>	
<i>The Need for Information Literacy Instruction</i> .....	33
<i>Supporting School Library Goals through Information Literacy Instruction</i> .....	34
<i>Virtual School Library's Role in Knowledge Management</i> .....	35
<i>Developing a Common Plan for Information Literacy with Administrative Support</i> .....	36
<i>Instigating a Common Plan for Information Literacy with Teacher Support</i> .....	37
<i>Collaboration as an Approach to Virtual School Library Integration</i> .....	38
<i>School Learning Commons Reflections</i> .....	39
<b>References</b> .....	41

## INTRODUCTION

### **Becoming a Secondary School Teacher-Librarian**

Sometimes I wonder what I was thinking when I took the plunge from my cozy niche as an elementary teacher-librarian to become the new teacher-librarian of the largest secondary school in our District. Armed with a diploma in teacher-librarianship, a high level of energy, and with the encouraging support of the school's principal, I found myself facing the almost overwhelming challenge of overhauling a rather out-dated library to create a more vibrant secondary program. I spent most of my summer vacation immersing myself in secondary school culture by voraciously reading professional library journals, questioning my circle of more-experienced secondary colleagues, creating a library action plan, and preparing long lists of jobs to accomplish.

September arrived and, despite my groundwork, I soon found myself hopelessly out of my comfort zone in an unfamiliar secondary setting. I struggled to find something tangible I could do while I observed and learned. I decided to begin by tackling the physical appearance of the library, remaking it into a more appealing and welcoming space for the students. I also channeled my passion for books into encouraging leisure reading and updating the fiction collection, with very successful results. Fortunately, by year two, I had a much better grasp of the secondary curriculum and was more at ease interacting with the senior students. My new library technician partner and I thoroughly overhauled the library's dated non-fiction collection, modernized the computer resources, and established a service-centered focus. But although the library was now a busier center in the school and had improved circulation, I could identify a number of significant and troubling shortcomings that still needed to be addressed.

### **Identifying Library Program Concerns**

From my professional reading, I recognized that our secondary library program was still woefully out of step with models of best practice for 21<sup>st</sup> century learners. The teachers continued to independently design library research projects, with no true collaborative planning or technology integration occurring. I also observed that our students lacked needed expertise in using digital resources, ignored the databases and relied heavily upon Google and Wikipedia as resources. However, without library lesson collaboration with teachers, opportunities to offer

information literacy instruction were non-existent. As the school's teacher-librarian, I knew it was my responsibility to create a more effective library program but felt I lacked both the necessary foundational knowledge and requisite level of confidence in using current technologies to tackle this next step. These perceived shortcomings prompted me to take an education leave and enroll full-time in the Master of Education program for Teacher-Librarianship through the University of Alberta's Distance Learning (TL-DL) program.

### **Teacher-Librarian Program Leads to Interest in School Library Web Sites**

Due to my school's specific needs, the university courses that proved most pertinent were those on technology instruction, inquiry-based learning and leadership in information literacy. However, throughout the coursework my general knowledge of library practices was constantly challenged and extended. I came to better understand my responsibilities as a school literacy leader in promoting the new information literacies of our 21<sup>st</sup> century. I could identify additional areas for future focus in our secondary library program, such as introducing graphic novels and database resources, and the prospect of a library learning commons as a means for school improvement.

One of the major features our library lacked was the presence of a school library web site. A preliminary investigation showed that such a web site, also known as a virtual school library, could potentially serve as a *digital showcase* for organizing online databases, curriculum resources, bibliography information, forms, and for featuring new resources and literature. It could also serve as a valuable addition to the school library commons model.

### **Exploring the Nature of School Library Web Sites**

During my *School Library Information Services and Materials* course, University of Alberta instructor Diane Galloway Solowan encouraged me to further investigate my interest in establishing a library web site. I began my personal inquiry by searching for practical 'how to' information, hoping these suggestions would help me design the 'perfect' web presence for our school library. At first I focused on specific features to include, tips for creating the site and the commonalities of exemplary websites. As I gathered numerous articles from professional library journals to learn more about school library web site development, I discovered Pappas' (2005) article entitled *Inquiry Digital Learning Centers* in which she wrote:



School library media center websites can be designed as more than a collection of resources. These websites have great potential to be digital learning centers, providing resources for information and tools that become a scaffold in the process of gathering and using that information. (p. 21)

Reading this passage was a very enlightening moment for me – one of those ‘bolt out of the blue’ experiences where suddenly a missing piece clicks, shifting thought in a totally new direction. The concept that a school library web site could evolve beyond a mere passive collection of useful resources to become an active vehicle furthering the missions of the library program was an exciting insight and a galvanizing possibility. It caused me to immediately abandon my broader practical-centered focus and fueled a series of deep recursive explorations back into existing research on school library web sites.

Through this narrowed lens, I searched widely for specific information on the ways a teacher-librarian could use a library web site as a learning tool to connect students with quality resources and also support library instruction. In a secondary school with over 1800 students and me as the sole teacher-librarian, I was understandably motivated to learn how a virtual school library could increase my effectiveness, especially in the area of establishing greater information literacy within the student population.

Another moment of insight, and one that further extended my perception was the emerging concept of a student-centered approach to developing the virtual school library. Wang advises that virtual school libraries “ought to be constructed by examining the needs of learners, their learning priorities, and the mission of the organization” (as cited in Valenza, 2007, p. 216). This call for end-user involvement led me to establish the Student Library Advisory Council at my school and to create a school-wide survey tool to identify student needs and interests related to the library program. As I delved further into the current literature, I also came to appreciate the importance of having an underlying library mission statement to direct and permeate all decision-making related to the school web site’s development. This realization caused me to further backtrack and draft a necessary guiding mission statement for our library with the assistance and approval of the Library Advisory Council students, teachers and administration.

### **More Possibilities for Virtual School Libraries**

Each new insight gleaned from the literature on virtual school libraries has led to similar side-trips to investigate new dimensions of the issue, and kept me circling in a holding pattern of

recursive investigation. One challenge was the lack of pertinent research on this relatively new topic of virtual school libraries. I had to search widely, sometimes applying academic and public virtual library research studies to a school setting. Direct observations with students in the library setting confirmed the research findings I uncovered – such as the need for information literacy instruction for today’s teens. The literature on virtual school libraries contains references to use of these digital portals as a means to support inquiry learning, encourage critical thinking, plan collaboratively with teachers and provide an avenue for teacher-librarian leadership. These articles clarify that the digital school library can also serve as an important intellectual and cultural venue for the entire secondary school.

### **Structuring my Investigations about Virtual School Libraries**

The inquiry question now guiding my research is: *Why might the virtual school library be considered a necessary feature in today’s secondary school program?* These secondary questions emerge from an investigation of the professional literature and educational research:

1. How can a virtual school library further the learning priorities of today’s school library program?
2. In which specific ways can virtual school libraries actively promote library program objectives?
3. What considerations make for an exemplary virtual school library?

Through the process of completing this capping paper, I wish to develop a strong framework of understanding for the future construction of my school’s virtual library. To create a digital presence that truly reflects and extends the program of the physical library and the needs of the school community is an ambitious undertaking and requires much pre-thought. The author A. A. Milne once advised that, “Organizing is what you do before you do something, so that when you do it, it's not all mixed up.” Having examined numerous examples of virtual school libraries during this paper – some worthy of international awards and others little more than cluttered one page bulletins - I prefer to save time and energy by first carefully thinking through the development process. I am hopeful that this capping paper may encourage other teacher-librarians to reflect upon their own foundational and organizational priorities in order to construct web sites that actively promote the information literacy needs of today’s students.

## LITERATURE REVIEW

The virtual school library can support today's school library program as a conduit to digital resources, online instruction, and customized learning spaces. Paramount to the development of an effective virtual school library is the professional guidance of the teacher-librarian, who recognizes the needs of the school community, and works in collaboration with staff and students. When combined with instructional support, these school library web sites have the potential to develop into portals that actively promote the information literacy requirements of secondary schools.

### Enhancing the Learning Priorities of Today's School Library Programs

#### How Have School Libraries Changed for 21<sup>st</sup> Century Learners?

Libraries, which have long served as institutions of culture, learning, and knowledge, are presently undergoing a revisioning of their traditional practices (Asselin & Doiron, 2008; Loertscher, Koechlin & Zwaan, 2008). A suggested impetus for the current transformation of libraries is explained by Kapitzke and Bruce (2006):

...access to information resources and services is now losing its ties to time, place, face-to-face social interaction...[as] bit by bit and brick by brick, online technologies and new media are disassembling the institutional spaces, privileges, powers, and practices of libraries. (p. xiv)

The delivery of contemporary school library services reflects this shift toward the new possibilities of technology with a focus on offering a more client-based, customized approach to meeting the information needs of patrons (Kapitzke & Bruce, 2006; Koechlin, 2010; Loertscher, 2007, 2008; Loertscher, Koechlin & Zwaan, 2008; Schmidt, 2006). School libraries are being transformed from *places* for simply locating resources to customized *spaces* for learning. In these new library *spaces* students receive help with creating and exploring their own inquiry questions, and are encouraged to create deeper understandings and new critical knowledge with relevancy to their lives (Burbles, 2006; Canadian Library Association (CLA), 2000; Cooper-Simon, 2008; Donham, Bishop, Kuhlthau & Oberg, 2001; Harris, 2003). The students in our classrooms today are the first generation to have grown up surrounded by Internet technologies and constantly changing digital possibilities. (This demographic group is classed as the Net Generation.) Current instructional practices must align to this reality with educators forging meaningful connections to students and their hard-wired world (Todd, 2008). Information

technology experts, library practitioners, and educational consultants urge teachers to incorporate current technologies into purposeful lesson design as an effective means of engaging today's Net Generation students (Asselin & Doiron, 2008; Lance, 2001; Loertscher, 2007; Todd, 2008).

Teacher-librarians have responded to these recommendations by exploring ways to integrate information technologies and digital tools (such as Web 2.0) into school library programs (Kapitzke & Bruce, 2006; Lance, 2001; Loertscher, 2007; O'Connell, 2002; Valenza, 2007a). Collections of quality print resources are now joined by a host of new virtual resources, such as electronic periodicals, subscription databases, video-streaming, and e-books, leading Schmidt (2006) to describe the potential of today's school library as "an online doorway to information in any format stored at many different locations" (p. 58).

The general perception of the school library as an access point to quality information has naturally led to the development of various digital manifestations (*school library web sites or virtual school libraries*), which serve as a way to organize web-based resources and offer assistance in an online environment (Church, 2005; Clyde 2000b; Cooper-Simon, 2008; Loertscher, 2007; O'Connell, 2002; Wolverton & Burke, 2009). Shoham and Shemer-Shalman (2008) draw upon their extensive work with library information studies, acknowledging the advent of the virtual school library as an indication of how "the digital environment is changing how school libraries work" (p. 87). Cooper-Simon (2008) views this new paradigm as a shift toward more social, global Web 2.0 thinking. Although virtual school libraries are quickly becoming an established model for delivering information to 21<sup>st</sup> century library learners (Clyde, 2000b; Loertscher, 2007; Peters & Bell, 2006; Valenza, 2005b), a simple Google search reveals that not every school library offers an online presence. Clyde (2000b) dismisses the question of whether or not to create a site, and urges teacher-librarians to instead consider "what kind of web site should we have?" (p. 99). Practitioners and researchers caution that those school libraries that select *status quo* traditional library practice, disregarding the importance of the Net Generation's digital landscape, risk obsolescence (Church, 2005; Clyde, 2000b; O'Connell, 2002; Shoham & Shemer-Shalman, 2008). Information technology consultant Marc Prensky (2008) echoes the educational effects of ignoring the prevalence of information technologies when he cautions, "by continuing to teach the 'backup' stuff, there is no room to teach for the future" (p. 2). Teacher-librarians are urged to transform their school library programs to reflect the changing informational landscape and join the ranks of '21<sup>st</sup> century librarians' (Loertscher,

2007; Shoham & Shemer-Shalman, 2008; Valenza, 2007b).

### **What is the Role of the Teacher-Librarian in the 21<sup>st</sup> Century?**

In the 21<sup>st</sup> century model for exemplary school libraries, teacher-librarians emerge as school leaders with the challenge of nurturing school-wide improvement (Asselin, 2005; O’Connell, 2002; Todd, 2008; Zmuda & Harada, 2008). They collaborate with teachers to improve student learning and achievement, promote the important new digital literacies - in addition to the traditional literacies (Asselin & Doiron, 2008; Sykes, 2002; Valenza, 2007b), and disseminate best practices in information technology to the wider school community (Asselin, 2005; Lamb & Johnson, 2008; Valenza, 2007b). Koechlin (2010) advocates, “students and teachers need [teacher-librarians’] expertise and support now” (p. 20). “Under the leadership and expertise of the teacher-librarian, various learning partnerships, and Professional Learning Teams, [teacher-librarians] can develop the [library as a Learning Commons] and showcase for best practice and ongoing school improvement” (p. 21).

As champions of information literacy – teacher-librarians are responsible for ensuring that both students and staff become effective and discerning users of information (Harris, 2003; Meyers & Eisenberg, 2008; Schmidt, 2006; Valenza, 2007b). Leading voices in librarianship share troubling concerns regarding the Net Generation’s ineffectiveness in locating and evaluating relevant web-based resources within an ocean of information (Gunn, 2002; Scott & O’Sullivan, 2005; Todd, 2008; Valenza, 2005b, 2007a). A British research study by Rowlands & Nicolas (2008) examined the information seeking practices of college students and reported that search engines were much preferred over information searches initiated from a library web site or those assisted by library staff (as cited in Todd, 2008, p. 23). Teacher-librarians, as experts in knowledge management (O’Connell, 2002), are uniquely placed to address these shortcomings in search practices by helping to reorganize and categorize the web for student learners (Koechlin, 2010; Valenza, 2007a). They can use Google and Wikipedia as natural segues into introducing the critical considerations of authority, scope, accuracy, currency, and bias and guide students to question the popular information sources upon which they commonly rely. Students may conclude that perhaps their school libraries offer more reliable and accurate information than their favourite search engines (Wolverton & Burke, 2009). Valenza (2005a) emphasizes the importance of the teacher-librarian’s role as an information literacy leader, when she advises “it

is critical that we equip this first generation of computer-savvy students with the knowledge and habits of mind they need” (pp. 8-9). Certainly, students without critical literacy skills in place will struggle to achieve success in the dynamics of our digital-based and information-rich world (Asselin & Doiron, 2008; Meyers & Eisenberg, 2008; Todd, 2008).

The potential of the school library web site to serve as an interactive tool, assisting the teacher-librarian in connecting students to quality resources within their personal frameworks and furthering essential information literacy instruction beyond the scope of the library’s walls is clearly recognized in the literature (Braxton, 2004; Cooper-Simon, 2008; Koechlin, 2010; Loertscher, 2007; Renfroe, 2005; Shoham & Shemer-Shalman, 2008; Todd, 2008; Valenza, 2005b, 2007a). Todd (2008) also emphasizes teacher-librarians’ leadership role in creating the interface of such digital portals, urging them to “re-imagine and reshape not just instructional practices, but also rethink access practices” as they design useful information *spaces* for patrons (p. 24). This view is also supported by Boyce (2006) who laments that in some instances “cybrary web pages are no more than a digital reconstruction of 19<sup>th</sup>-century institutional print morés” and challenges librarians to explore more innovative means of “exploiting the digital flow of networked space” (pp. 22-23). One example may be Loertscher’s (2007) concentric vision of an intranet connected to the school library home page in which students are able to create individualized learning spaces. Koechlin (2010) urges teacher-librarians to envision beyond the school library web site to the collaborative creation of a virtual learning commons or “active learning sphere” to “drive the changes needed to bring schools into the future and sustain improvement” (p. 23). Valenza (2007a) aligns traditional library practices with the future noting that, “virtual school libraries allow teacher-librarians to apply their traditional skills for collection development, collaboration, reference, and instruction in powerful new ways in highly populated, new information landscapes” (p. 207).

Teacher-librarians may worry that creating these digital services will keep patrons from using the features of the physical school library. Although academic libraries providing digital services have seen reductions in the use of their physical library space, no corresponding findings on the use of school libraries has been noted (Schoham & Shemer-Shalman, 2008). Blowers and Bryan (2004) believe that providing such web-based services will actually serve to strengthen the library’s value and help the teacher-librarian connect with new patron users, “who might not otherwise walk through the library’s doors” (p. 16). When questioned about the need for

libraries in this Internet age, Johnson (1998) also supported the power of incorporating new technologies arguing “adding technology to a [library] media center is like a strip mall adding a new store – all the stores get more traffic and higher sales” (p. 48).

### **What is the Definition of a Virtual School Library?**

The evolving use of online technology within the constructs of the traditional library model is reflected in various semantic attempts at definition. Schmidt (2002) defines the term *cybrary* as a library which reflects a blend of “real and virtual information resources, physical facilities and cyberspace and service delivery in person and online” (as cited in Schmidt, 2006, p. 63). Kapitzke and Bruce (2006) take exception with the popularized use of *cybrary*, *digital space*, and *virtual space* due to the implied emphasis on technology, creating their own moniker “libr@ry” to denote the insertion of technology into the library’s long-established information practices (pp. xxvi – xxvii). Bubbles (2006) views the library’s virtual space as a separate manifestation, and describes it as “a distinct experiential domain itself, real in its own way...and having the capacity to support significant educational possibilities once we regard it seriously as a space, and not just as a delivery system” (p. 4). The majority of articles in professional school library journals also refer to the library’s online presence as a unique entity, describing it as the *school library web page* (Clyde, 2004; Franklin & Stephens, 2007; Horton, 2006; Jurkowski, 2004; Koechlin, 2010; Renfroe, 2005). The term *virtual school library* commonly appears in the literature as an interchangeable synonym for the more widely used *school library web site* (the approach also taken for the intent of this paper).

As to a definition of purpose, Shoham and Shemer-Shalman’s (2008) analysis could not ascertain a clear designation to the contents of a school digital library. Blower and Bryan (2004) focus on the customization possibilities of these digital portals, describing them as “one-stop shopping web page[s]...[providing] a method of reorganizing and presenting information to make it easier for an individual to use” (p. 46). Braxton (2004) describes a curriculum focus, explaining “the school library is the hub on which the wheels of classroom programs turn, providing the human, physical, print, pictorial, electronic and digital resources necessary for curriculum delivery” (p. 52). O’Connell’s (2002) definition is more encompassing, noting “a virtual library can provide a framework for curricular goals and resources, instructional practices, assessments, and customized learning opportunities for all learners” (p. 23). Clyde (2000b) also observes that while school library web sites may reflect a variety of unique

purposes, these are likely parallel to those of the school's physical library, and that it is possible to reflect the needs of several patron groups within one web site creation. Koechlin (2010) also recognizes the client-based focus noting characteristics of unlimited access to a variety of resources and support.

Valenza (2005b), a master teacher-librarian and international library presenter, whose own high school library web page was selected as an International Association of School Librarianship (IASL)/Concord award winner, identifies *virtual school libraries* as “multipage online resources devoted to the needs of their specific learning communities. From a home page, users access search engines, databases, references, and general library and school information” (p. 54). In Valenza's follow-up (2007a) research study of virtual school libraries she attempts further clarification:

Though researchers continue to disagree over terminology [virtual library, digital library, electronic library, cyberlibrary, library web site] this study will use the term virtual library to describe a customized, structured online learning environment/community, developed by a teacher-librarian to improve and extend the services and mission of the library program to the learning community. (p. 210)

### **Why Should the Physical School Library Extend to Include a Virtual Presence?**

Regardless of the nomenclature, or whether the school library's virtual presence exists as a single web page or sophisticated hyperlinked repository, these web sites can be regarded as more than passive online collections of resources and as communicative tools capable of actively promoting library program goals (Lamb & Johnson, 2008; Pappas, 2005; Rooney & Schneider, 2006; Shoham & Shemer-Shalman, 2008). Virtual libraries can support effective school library programs by providing basic library tenets such as those described in the Canadian Library Association's *Position Statement on Effective School Library Programs*, specifically that students should have “access to resources in a variety of formats and in sufficient breadth and number to meet the demands of the curriculum and the varied capabilities and interests of the students” (2000). These web sites can also assist the teacher-librarian in extending information delivery services beyond the library's physical space through their ability to offer a range of reference, curricular, and ‘just in time’ information literacy instruction to a wider number of students on a 24/7 basis (Church, 2005; Clyde, 2000a, 2000b; Shoham & Shemer-Shalman, 2008).

Whether used in the library or accessed from their homes, Valenza (2005b) has first-hand experience observing that virtual school libraries can “offer young people both



independence and intervention, guiding learners through the complicated and often overwhelming processes of finding and using information” (p. 54). More specifically, they can allow the teacher-librarian opportunities for instruction (Valenza, 2007a), help students discover those quality digital resources not accessed by their favourite search engine (Braxton, 2004; Church, 2005; Horton, 2006; Valenza, 2005b; Wolverson, 2009), provide “a venue for higher-level thinking, problem-solving, decision-making, critical thinking, and creativity” (O’Connell, 2002, p. 23), as well as a tool for collaboration with students or teachers (Cooper-Simon, 2008; O’Connell, 2002; Valenza, 2005b). O’Connell (2002) summarizes these benefits stating: “A virtual library can provide a framework for curricular goals and resources, instructional practices, assessments, and customized learning opportunities for all learners” (p. 23). Shoham and Shemer-Shalman’s (2008) research study of a cross-section of school libraries in both Israel and worldwide concluded that these digital portals are presently changing the delivery of school library services by offering a host of new opportunities for learners. Koechlin (2010) also recognizes the potential of the virtual school library as a feature in the pedagogical shift toward a learning commons model for school improvement.

Clyde’s (2000a, 2000b, 2004) classic longitudinal research studies document the development of school library web sites since their first appearance in the mid 1990s. Her findings reflect a disparity in web site purpose, which may be summarized as:

- Archives for curriculum support and selected online resources
- Showcases for student work
- Public relations brochures promoting the school library
- Access portals for staff and students to databases and other online information
- Hosts for the school library’s online catalogue (Clyde, 2000a)

Additionally the web site may be used for advocacy, to promote the physical library (Church, 2006), or even as a public relation tool to create, as Logan and Beuselinck (2002) explain, “an image of the school as a technologically sophisticated, innovative, and progressive environment with high standards and exciting programs” (p. 20). Braxton (2004) suggests using the virtual school library as a direct portal to online learning programs for use by staff or students (p. 52).

Since it is possible for the teacher-librarian to develop the virtual school library to reflect many unique purposes, establishing a focus which best communicates the goals and

requirements of the particular school community – information, reference, instructional or a combination thereof - is an essential decision to be made (Baumbach, 2005; Braxton, 2004; Clyde, 2000a, 2000b; Warlick, 2005). Not all library literature recognizes the instructive opportunities presented through the school library web page, and there are numerous journal articles that focus on offering advice on its construction without any discussion of its intent (Janowski, 2005; Minkel, 2002; Pretlow, 2008; Ryan, 2000). Although it can serve as an effective platform for connecting the school population with information, the virtual school library may evolve to become more than another web directory listing useful resource links (Cooper-Simon, 2008). Referring to her library web page as an example, Valenza (2005b) describes it as “the school’s instructional archive...shar[ing] collaboratively developed lessons, WebQuests, rubrics, handouts, organizers, and research scaffolds” as well as online lessons such as “organizers for preparing speeches, debates, presentations on current events...tests for determining whether a student has developed a solid thesis; and professional development presentations” (p. 57). The potential to move beyond a simplistic model and evolve as a more comprehensive and interactive portal, supporting the underlying goals of the school’s library program, and possibly advancing school-wide improvement goals, is documented in school library educational research (Braxton, 2004; Clyde, 2000a, 2000b; Koechlin, 2010; Pappas, 2005, Valenza, 2005a, 2005b, 2007a, 2007b; Warlick, 2005).

### **Is Collaborative Involvement an Essential Consideration?**

The active involvement of teacher-librarians in the development of the school library web site is highly recommended so the site reflects school and library goals as well as their personal beliefs about student learning and libraries (Braxton 2004; Clyde, 2000a, 2000b, 2002, 2004; Logan & Beuselinck, 2002; O’Connell, 2002). Clyde (2002) advises:

Even if a consultant or other specialist is used [such as an information technology specialist on the school staff], the school library personnel should be the ones who decide what information should go on the school library’s web pages and how that information should be organized to promote learning. They are the school’s information specialists, the people who know the information needs of their school community. (p. 26)

During interviews with Israeli school librarians, Shoham and Shemer-Shalman (2008) determined that “in 50% of the cases, the initiative to build web sites came from the librarians themselves” (p. 90). This does not imply that the teacher-librarian should create the site without

support. Enlisting the advice, ideas, and active involvement of the entire school community increases the appeal, relevance, and usefulness of the school library website (Clyde, 2000b; Crowley, Leffel, Ramirez, Hart & Armstrong, 2002; George, 2008; Koechlin, 2010; Krueger, Ray & Knight, 2004; Shoham & Shemer-Shalman 2008; Warlick, 2005). This collaborative involvement with end-users also speaks to the ownership nature of Web 2.0, as the web site evolves into what Lamb and Johnson (2008) describe as “an ongoing, virtual connection with students, teachers, administrators, parents and community members” (p. 69). Jurkowski (2004) advises that adding content to a web site is an extremely time consuming process and encourages teacher-librarians to ease the load by collaborating with their professional librarian colleagues to create shared web pages or documents. Warlick (2005) also suggests drawing on the resources of the entire school community, explaining, “No professional accomplishes his or her goals alone. It happens when a community (small or large) behaves in ways that lead to success” (p. 14). Certainly this emphasis on active school-wide involvement is a key consideration and one that Koechlin (2010) believes shifts the school library web site toward a learning commons model, where school improvement can be actively promoted.

### **How Can the Virtual School Library Actively Promote Library Program Objectives?**

There is compelling evidence to indicate that school libraries, staffed by qualified teacher-librarians, enhance student achievement (Haycock 2003; Lance, 2001; Loertscher, 2007;). With increasing numbers of school libraries establishing a web presence, promoting student learning extends to the digital setting (Church, 2005; Shoham & Shemer-Shalman, 2008). Virtual school libraries can play an integral part in facilitating the development of students’ skills through a multi-faceted focus on research, information literacy, current technologies, and literature (Horton, 2005; Shoham & Shemer-Shalman, 2008). They can guide users towards appropriate resources (Braxton, 2004; Church, 2005; Horton, 2005; Pappas, 2005; Valenza, 2005b; Wolverton & Burke, 2009), introduce new possibilities (Shoham & Shemer-Shalman, 2008), and support classroom instruction by helping teachers “create and craft meaningful learning experiences for their students...within the context of a contemporary information environment” (Warlick, 2005, p. 13). However, it is interesting to note that despite these perceived advantages “no research has been published on the implications of the library web sites for the functioning of the school library” (Shoham & Shemer-Shalman, 2008, p. 89).

Despite this lack of firm evidence some library experts have moved ahead to describe the new educational paradigm of a learning commons, that changes the content provider from one specific literacy expert to many within a school setting (Loertscher, Koechlin & Zwaan, 2008).

### **How Can the Virtual School Library Connect Students with Quality Resources?**

The need to connect students with quality resources is a common reason for establishing a virtual school library, but Loertscher (2008) believes that these web sites are probably “the last things on most kids’ minds” (p. 46). Research studies illustrate that the most capable students do not necessarily excel at research tasks, and are content to rely upon mediocre resources which *satisfice* their information needs (Kirkland, 2009; Loertscher, 2007; Valenza, 2005a, 2007a). Meyers and Eisenberg’s (2008) analysis of the behaviour of grade nine students in Seattle, reported that while web sites were used most often to complete homework (48%), the students held greatest trust in the information contained in books (37%), with library web sites infrequently used to initiate searches (Tables 4-6). Todd (2008) emphasizes the influence of the Internet in students’ lives, commenting how “the use of Web 2.0 in particular appears to have become central to the lives of teens, and online activities are deeply embedded in their lifestyles, even rivaling television in terms of time commitment” (p. 27). As networked as they may be, students continue to demonstrate information seeking behaviours that “show little improvement in information literacy capabilities such as evaluating the relevance, accuracy and authority of information, and developing effective search strategies” (p. 24). Asselin and Doiron (2008) also determined that teens:

- Rely exclusively on Google as their search engine
- Use natural language as search terms
- Spend little time reading the source; instead skimming and scanning
- [Use] ‘cutting and pasting’ rather than rewording and recording (p. 3).

Although the research reflects that students may not be savvy searchers (Asselin & Doiron, 2008; Todd, 2008), Todd and Kuhlthau (2005) document that students highly rated the information technology access and assistance provided in the school library. Further support of library programs is provided by Hay (2006) who reports trends reflecting “an increasing dependence on, and demand for, a school library facility that provides students with access to ‘state of the art’ technologies, resources and services to support their learning” (as cited in Todd,

2008, p. 20). Meyer and Eisenberg's (2008) Seattle study noted several additional concerns about the search habits of teens which may indicate future directions to explore: 1) library portals are seldom used unless specifically directed by the assignment and 2) that students underutilize databases and periodicals because they do not recognize that they have been taught to use them (p. 12). Harris (2003) explains that isolated exposures are not internalized by teens and, "like critical thinking skills, information literacy skills must be taught and practiced in multiple ways and in a variety of settings over time" (p. 218). Asselin (2005) and Harris (2003) advocate that teacher-librarians should show greater leadership in informational literacy instruction, by enlisting staff support through collaborative lesson design, and stressing the critical importance of repeated skill practice in using information literacies.

Virtual school libraries have the capability to guide students through the process of selecting and evaluating resources, and this capability is enhanced further when combined with instructional support. Valenza (2005a) interviewed a number of prominent educators to gather their specific observations about the effective search methods they use to connect students with quality resources. Berger, an educational technology consultant, observed that teens desire a level of independence, interactivity, collaboration, and customization when searching for information. She believed that scaffolding support, provided through work with students and the careful development of library web sites and assignments, is invaluable (as cited in Valenza, 2005a). Abilock, who developed one of the first virtual school libraries, noted that a school library web site, with its subscription databases and support resources and links, should be organized to reflect the school's curriculum objectives. She advocated for library-based instruction in the use of citation makers, web page evaluation, pathfinders and a variety of search tools to introduce and support the information available through virtual portals (as cited in Valenza, 2005a). Founder of LM\_Net and winner of the first IASL Concord award for best school library web site, Milbury was adamant that teacher-librarians must learn to locate and organize valuable online web pages for use by their students. He has created lists of curriculum-related pathfinders linked to his library home page and demonstrated to students how to access these quality resources (as cited in Valenza, 2005a). Harris, a high school librarian and associate professor in library administration, designed her school's web page to strongly push students towards the use of valuable subscription databases (as cited in Valenza, 2005a). Each of these interviewed library professionals viewed the virtual school library as an effective means of

linking their students to valuable information sources. Church (2005) summarizes the challenges for teacher-librarians in helping students locate quality-rich resources in an information-rich world:

There is so much good information out there, and it is our job as library media specialists to point our students to it! There is so much bad information out there, and it is our job to teach students how to evaluate what they find. (p. 9)

### **How Can Teacher-Librarians be Instrumental in Promoting Information Literacy Instruction?**

To address information literacy shortcomings, teacher-librarians must help students to develop the critical toolkit necessary to confront and make sense of the realms of digital information they encounter (Asselin, 2005; Asselin & Doiron, 2008). The new considerations of *critical thinking, technological literacy, creativity, inquiry and problem solving, and ethics and social responsibility*, have been identified by Asselin and Doiron (2008) as “the multi-modal, multiple literacies that will enable full literacy development for today’s learners” and lead to success in 21<sup>st</sup> century contexts (p. 7). Asselin’s investigations (2005) found that while information literacy outcomes are integrated into provincial core curriculums, “there is little research that examines how information skills in a school’s literacy programs are being considered and implemented” (p. 19). Teacher-librarians are well positioned to assume this information leadership role within the school, especially when provided the support of administrators (Asselin, 2005; Oberg, 2007; Zmuda & Harada, 2008). Asselin and Doiron’s (2008) transformative visions for today’s schools require teacher-librarians to promote information literacy objectives through meaningful collaboration with teachers, to promote critical thinking as opposed to lower level fact gathering, and to guard against the school library web site’s decline into a glorified Internet reference library. Meyers and Eisenberg’s (2008) study urges teacher-librarians to “develop ways of delivering credible, relevant, useful information to students that they can access easily and incorporate readily into their work” and to provide the necessary instruction to value the credibility of these resources (p. 13).

### **How Can the Virtual School Library Promote Successful Information Seeking Behaviour?**

Assisting all students in meeting their informational needs, especially in a large secondary school, is a formidable task for teacher-librarians. Savvy professionals could begin by

determining the priorities of the community (Braxton, 2004), perhaps through observation or a school wide online survey (Dando, 2005). They could then consider how to meet the ‘just in time’ requirements of as many patrons as possible, perhaps through grade-wide lessons in a particular subject area. With administrative support, a school-wide collaborative plan can be developed in agreement with teaching colleagues (Haycock, as cited in Valenza, 2005a) to ensure that all students are exposed to the breadth of resources available for their use on the virtual school library. This scheduled informed library instruction can allow the teacher-librarian to introduce digital resources, discuss current literacy issues such as copyright and use of technology tools (Asselin & Doiron, 2008), share effective search strategies, the capabilities of a variety of search engines (Gunn, 2002, 2006), and show students where to retrieve this information from archives in the virtual school library on a 24/7 basis. Valenza’s (2005a) series of interviews with library professionals again offer additional insights into promoting information literacy. Abilock explains “that students don’t know a web page is garbage until they’ve examined a good one and seen the difference” (as cited in Valenza, 2005a, p. 40). Berger notes how opportunities for student reflection, mind mapping, and discussion of effective search strategies can further reinforce library-based lessons (as cited in Valenza, 2005a). Barr believes that challenging students to think about the new information-seeking skills they are exploring supports their learning (as cited in Valenza, 2005a). Encouraging active participation by students would appear a key theme in engaging student learners and integrating effective search strategies into their own habits of practice.

Students who experience success using the virtual school library may be more apt to return to the site, modifying their existing information seeking behaviours. Although they may need guidance in accessing new resources, proven usability, with answers a few easy clicks away, encourages students to revisit and develop the habitual use of the features housed on the web site (Kirkland, 2009; Valenza, 2007; Warlick, 2005). Pathfinders on curriculum topics can be developed to direct students to quality resources, freeing the teacher-librarian to assist other classes (Lamb & Johnson, 2008, Pappas, 2005). While its purpose can be chiefly informative, the school library web site should also be designed as a welcoming and intuitive space – a reflection of the atmosphere found in the physical library (Wisniewski & Fichter, 2007). The site must be user-centered, strategically designed, and easily navigated in order to become an accepted part of the students’ daily lives (Clyde, 2000b; Valenza, 2005b; Wolverton & Burke,

2009).

In order to encourage more proficient searches, teacher-librarians should consider not only the ease of pathways but also the content of information included in the virtual school library. The same high standards used for the selection of print resources should also be applied when deciding on which resources to post as not every link is worthy of inclusion (Logan & Beuselinck; 2002). Selection tools such as review journals, web site annotations in professional library journals, recommendations by colleagues filtered through the evaluative measures of scope, accuracy, authority, currency, and bias, should be used to create a useful online collection (Riedling, 2005). Within the framework of a constructivist approach to learning, students require a greater depth and breadth of resources to support their personal inquiries (Donham et al, 2001; Pappas, 2005). This requirement for quality information sources can be supported through the addition of a current digital collection. Paired with quality content is the need for purposeful and thoughtfully designed research tasks created by teacher-librarians and teachers working as a collaborative team (Haycock as cited in Valenza, 2005a; Todd, 2008).

The instructional potential of the virtual school library as a vehicle to encourage information literacies is noted; however, Clyde (2000b) observes “there is no point in having a Web site if no one visits it” (p. 104). Teacher-librarians can promote the virtual school library’s online resources with teachers during collaborative library-based research assignments as well as through formal and informal professional development opportunities (Krueger, Ray & Knight, 2004). Kreuger, Ray and Knight (2004) have noted the ironic dilemma in academic libraries of spending an increased proportion of library dollars on digital resources that are unfortunately not adequately shared with patrons because of library staff cutbacks (p. 285). When library staff has limited time available for direct instruction, the virtual school library may also be encouraged (and its use supported) using a variety of promotional tools such as bookmarks, announcements, posters (Digby, 2004; Fagan, 2009; Logan & Beuselinck, 2002) or through other current technologies such as social networking tools, blogs, and videos.

### **How Can the Virtual School Library Support Students with Individualized Needs?**

The customized nature of the virtual school library offers alternatives to students with individualized needs. Supplying learning scaffolds, enrichment opportunities, and access to those resources that “go beyond traditional curriculum support” (Lamb & Johnson, 2008, Pappas,



2005) can benefit students with disabilities, learning difficulties or visual processing problems (Blowers & Bryan), those who participate in specialized programs, or gifted learners. Specialized software tools can be applied to determine how well the school library web site's design interface supports students with hearing, vision or other challenges (Ricchardi, Easton & Small, 2004). 'Just-for-me' information may be directly customized to an individual's age and ability and accessed through the school's virtual portal (Lamb & Johnson, 2008; O'Connell, 2002). A myriad of Web 2.0 collaborative tools open up new possibilities for communication and creative project options, (Valenza, 2007b) as well as virtual field trips and gallery visits. A passion for reading may be fostered through hosted blogs, online book clubs, reading lists, reviews, and links to author sites and literature databases (Baumbach, Brewer & Renfroe, 2004; Blowers & Bryan, 2004; Church, 2006; Shoham & Shemer-Shalman, 2008).

Academic aids such as tutorials, writing templates, instructional videos, English language support, and specialized reference tools such as a pronouncing dictionary, visual thesaurus, or video streaming enable differentiated learners to achieve success in meeting individualized learning outcomes. Links to homework help centers and emails to the school's teacher-librarian offer interactive communication possibilities for students. Pappas (2005) suggests that the possible applications for this digital medium are "limited only by the creativity and web-design skills of the [teacher-librarian]" (p. 23). Through its role in supporting teaching and learning in both the physical and digital realms, the virtual school library illustrates how students can successfully operate and learn within "a hybrid environment", especially one customized to meet their specific learning needs (Valenza, 2007, p. 224). Schmidt (2006) notes the every-changing transitory needs of library clients and then concludes, "there will be an ongoing need to develop and provide new services in a seamless digital environment" (p. 70).

### **What are the Further Benefits of Establishing a Virtual School Library?**

A virtual school library can both provide and support a wealth of learning experiences for all students and staff. Valenza (2005b) recognizes the virtual library as "an integral part of the instructional culture of the school" and notes that in her school "the virtual library has become students' and teachers' starting point for research – their access to rich and meaningful resources and learning" (p. 59). Its organizational nature assists those learners who may feel overwhelmed by too much information or whose weak searching skills lead them to inappropriate information, and can enable them to achieve greater success (Blowers & Bryan,

2004). The wider scope of quality digital resources allow the library web page to be used as a tool to promote inquiry, allowing students to deeply investigate their questions and powerfully enhancing student learning (Pappas, 2005). Posting examples of student projects (with permission) on the school library web page illustrates its potential as an electronic bulletin board. This platform allows students to celebrate their work through sharing with a wider global audience, thereby strengthening the learning process through feedback and reflection (Braxton, 2004; Lamb & Johnson, 2008) and encouraging greater traffic to the site. Teacher-librarians can involve interested students in posting reviews of new books, developing wikis archiving recommended reads, and hosting interactive blogs devoted to literature and writing topics (Church, 2006). The virtual school library also offers teacher-librarians an opportunity to showcase library initiatives, develop successful collaborative ventures with teaching colleagues, and strengthen their leadership role within the school. Warlick (2005) suggests teacher-librarians consider how this virtual representation can be extended to overcome shortcomings apparent in the school's physical library.

Shoham and Shemer-Shalman's (2008) research is one of the few directly pertinent studies reflecting how digital libraries impact current school library programs. A summary of their findings shows that student involvement in the library web site leads to "more cooperation between students and the library" (p. 95). Students also show greater independence in solving their information needs in libraries with school library web sites. Those sites offering an electronic reference service received fewer in-person requests from patrons and noted that these in-person reference queries were more succinct. These observations, however, did not correlate into greater free time for teacher-librarians as increased web site related tasks and instruction served to fill the void. International schools involved in this same study reflected an 18% increase in parent communications, which the authors suggest may be related to the opportunities for dialogue and home use offered through the school library web site. In addition, Shoham and Shemer-Shalman observed renewed staff involvement in the library, especially in the area of web site curriculum content.

Despite the progressive change in the delivery of school library services, Shoham and Shemer-Shalman (2008) ironically note that the majority of school libraries involved in their study continue to focus on traditional practices despite the many opportunities available through current Internet technologies. "This is evidenced by a total ban on using the site for e-mail,

games, or chats...[and] one of the most obvious is the emphasis placed by librarians on using the school library web site to expand reading encouragement activity” (p. 96). They report that this finding reflects a trend commonly observed in the initial integration of new technologies and underscores the need for teacher-librarians to reflect on best practices in delivering today’s library programs.

### **What Considerations Make an Exemplary Virtual School Library?**

Creating an effective school library web site is a process that demands forethought, careful planning, and attention to detail so that its full potential may be realized (Barbules, 2006; Braxton, 2004; Clyde, 2000b; Horton, 2006; Kirkland, 2009). Barbules (2006) states that such “knowledge spaces” should be created with consideration so they “...are not just archives or receptacles for information. Designing these with an eye toward making them places, and not just spaces, involves a number of decisions and balancing acts” (p. 11), especially a focus upon the needs of the school community. It has already been observed that establishing a vision for the site is a key consideration. Baumbach (2005), Clyde (2000b), and Logan and Beuselinck (2002) all advise teacher-librarians to use the school library’s mission statement to communicate the overall vision of the virtual school library.

Valenza (2005a) interviewed Barr, a National Educational Technology Standards (NETS) leadership team member, to determine which specific features indicate an exemplary virtual school library. Barr’s response emphasizes the essentials of purpose:

I would look for search sites that make their purpose clear, that encourage the use of multiple search strategies, that provide really useful online help, that provide tools to aid thinking, and that challenge students to learn while they are searching...our site is designed to provide learning tools. Our purpose is learning support, not performance support. (p. 77)

While the staff and students may visit the web site for a set purpose, Kirkland (2009) maintains that “the visual design of a site can invite them in and provide a clear path to learning” (p. 29) and for this reason the library’s virtual spaces “need to be even more engaging than...physical spaces” (p. 28). Shoham and Shemer-Shalman’s (2008) international study on school library websites takes a more functional perspective concluding, “the content of the pages on the school library sites should be the flagship of the library” (p. 96). Logan and Beuselinck (2002) chose to support both function and appearance as essential ingredients in a successful

web site. Burbules (2006) suggests teacher-librarians explore new avenues by developing virtual libraries that venture away from the traditional “ordering of knowledge in the ‘real’ library...and redesign digital library services in a way more in keeping with the social logic, ecology, and culture of online, networked space” (pp. 22-23). Koechlin (2010) advises using “all the free tools and workspaces available to build a virtual learning commons” and to make this *place* as inviting as possible (p. 23). The range of possibilities in the creation of a virtual school library can be viewed through the lens of what best reflects the requirements of a particular school community.

### **Are There Existing Exemplars to Serve as Web Site Design Guides?**

Since their first appearances in 1994, school library web sites have evolved from simple web pages to emerge as “electronic information gateways” (Clyde, 2004, p. 166). As former Chair and Webmaster of IASL, Clyde’s (2000a, 2004) comprehensive studies of school library web sites from 1996 – 2002 attempt to descriptively categorize common features and purposes with a view toward creating a list of quality indicators for assessment use by teacher-librarians. Although her ongoing research of school library web sites was not completed due to her untimely death, Clyde’s (2004) efforts at analysis noted the range in the diversity of school library web sites and established a baseline for future research. Her findings also contributed to the establishment of the annual IASL/Concord School Library Web Page of the Year Award in 1999 (Clyde, 2000a, p. 52). Encouraging the development of exemplary sites, this award (with plaque and cash grant) was given “to a school library web site, from any country, that meets the selection criteria” as set by IASL (Clyde, 2000a, p. 52). (Note: This award is displayed as a Past Award on IASL’s web site with no winners noted beyond 2002.) Clyde (2000a) implies that the following IASL award selection criteria may be used as a critical assessment tool when developing or assessing school library web sites:

- Evidence of school library and/or teacher librarian involvement in page/site development;
- Relevance of the page/site to the goals and objectives of the school library;
- Visual appeal, including layout, choice of images, typeface and style;
- Organization of the information on the page/site;
- Quality of the writing and use of language (and proof-reading);
- Ease of use of the page/site, and navigational features;
- Educational, information, or public relations value of the page/site;
- Appropriateness for the needs of users;

- Currency, evidence of update policy, and the provision of current information and/or links;
- Technical quality (note that this is interpreted as the appropriate use of technology, not necessarily leading-edge technology);
- Value of the page/site as a model for other school libraries and/or teacher librarians. (pp. 52-53)

The development process can begin by first examining school library web page directories to view numerous examples and determine which approach to web site design best suits the needs of a particular school (Baumbach, 2005; Braxton, 2004; Franklin & Stephens, 2007; Jurkowski, 2004). In addition to viewing web pages created by past IASL winners (*School Libraries Online*) there are also examples of virtual school libraries that reflect 21<sup>st</sup> century standards for best practices listed in school library web site directories such as those established by Peter Milbury (*School Library and School Librarian Web Pages*) and Linda Bertland (*School Libraries on the Web*). Practical web design assistance is available from Joyce Valenza (*Writing School Library Web Pages: A Web Quest*) and Bonnie Skaalid (*Web Design for Instruction*). These examples offer design suggestions for teacher-librarians and their collaborative teams and illustrate that there are many different approaches to creating an exemplary virtual school library – some good and some not (Baumbach, 2005; Clyde, 2004; O’Connell, 2002).

### **Are Strategic Plans Available to Assist Web Site Development?**

Many professional library journals contain articles on how to create school library web sites, some listing possible features and current technologies to include (Baumbach, 2005; Braxton, 2004; Jurkowski, 2004; Lamb & Johnson, 2008; Warlick, 2005). Teacher-librarians wishing to design an exemplary school library web site can also consider Clyde’s (2000b) step-by-step strategic planning approach, which draws upon her considerable experience as IASL Webmaster. Her comprehensive article includes a strategic planning cycle diagram and describes the step by step process, and addresses important considerations such as: writing for the Internet, types of navigational tools, how to best mount the web page, promotion, and evaluation. Books featuring the planning and publishing process of constructing school library web pages are available for reference (Blowers & Bryan, 2004; George, 2008; Logan & Beuselinck, 2002).

Clyde’s (2004) longitudinal analysis of school library web sites also provides lists of the most common features - a reference for teacher-librarians who need to consider which items to

include in their own web sites. Baumbach, Brewer and Renfro (2004) have developed another list of useful category suggestions including reference, curriculum connections, literacy, and general library information. Peters and Bell (2006) describe specific ways to make the web site more accessible to users, including the sensible advice of “just making sure all of the information is accurate and current” (p. 34). Since a virtual school library is considered a dynamic creation, O’Connell (2002) provides a list of ideal features that may be incorporated some time in the future, such as group calendars, personal customization and integrated email systems.

It becomes clear from these articles, books, and web page directories that the job of creating a school library web site can become an overwhelming task due, in part, to the limitless scope of its virtual landscape. Logan and Beuselinck (2002) try to simplify the process by suggesting that teacher-librarians “start with a small, high quality site. Pinpoint a few high-priority web pages. Focus energies and resources on making sure they are useful and excellent” (p. 14). Blower and Bryan (2004) mirror this advice of ‘quality over quantity’ in order to encourage patrons to revisit the site. George (2008) counsels that designing a web site which meets everyone’s needs is made even more difficult because patrons don’t always know what features they will use until the web site is actually up and running and they have an opportunity to try it on for size.

### **How Can the Effectiveness of the Virtual School Library be Determined?**

With more teacher-librarians spending precious time and resources creating school library web sites, how can justification for this process be determined? In her research study of virtual school libraries, Valenza (2007a) notes a decided lack of empirical research on measuring the effectiveness of virtual school libraries. While George’s (2008) work on usability evaluation methods reiterates the need for clear objectives, without consistent expectations regarding purpose or established evaluation tools for the virtual school library, assessment would appear, at best, subjective. Clyde (2000b) suggests that teacher-librarians can invite potential users not involved with the development process to test pages before (and even after) they are mounted on the site. George (2008) supports that it is this recursive cycle of descriptive feedback and redesign when working with the target audience that determines and shapes the usability of the school library’s web site and furthers its effectiveness. Involvement of the end-users throughout this developmental process will help to create a site that “users will continue to use to access your

information resources” (p. xii).

Teacher-librarians can consider various assessment techniques to determine the effectiveness of the school library web page in terms of established goals. Baumbach (2005) suggests collecting direct observations of its use within the physical library or exploring ways to collect and use statistics. Needs assessments, questionnaires, observations of search tasks, web-based surveys, and focus group interviews are some examples of ways to potentially evaluate the site (Blowers & Bryan, 2004; Clyde, 2000b; Crowley et al., 2002; George 2008; Krueger, Ray & Knight, 2004; Logan and Beuselinck, 2002). Clyde’s (2000b) strategic planning document also lists specific questions the evaluator may consider, such as whether the site integrates current technologies or is meeting the needs of end-users, and a variety of evaluative techniques to consider, such as the addition of web-based counters or the submission of the site for awards. Braxton’s (2004) list of eight web site evaluation questions illustrates the possibilities of teacher-librarians conducting a self-assessment of their school library web site. Peters and Bell (2006) and Riccardi, Easton and Small (2004) have also outlined ways to test the web site’s accessibility from a more technical standpoint.

Teacher-librarians are advised that a school library web page is not a static creation and may undergo many revisions (Jurkowski, 2004). Blowers and Bryan (2004) note that “libraries are places of constant change, and their web sites should reflect that” (p. 108). Clyde (2000b) emphasizes this need for constant revision, stating, “if this does not happen, the site will become less and less relevant to the needs of users and will begin to look old-fashioned in the rapidly-changing environment of the Internet” (p. 106). Negative experiences will discourage return visits so even minor concerns need attention such as links checked for viability (Blowers & Bryan, 2004; Crowley et al., 2002). Logan and Beuselinck (2002), experts in web site usability, counsel that no web site is ever complete as maintenance and informed changes remain an ongoing process (p. 110). Blowers and Bryan (2004) add that these updates to the appearance and content also serve to motivate users to return to the library web site and suggest involving teen advisory boards for a steady supply of fresh ideas on ways to engage students. The literature supports the virtual school library as a dynamic venture that will require a real commitment, and ongoing maintenance to ensure it remains current, especially given the immediate and ever-changing nature of present-day information delivery systems (Blowers & Bryan, 2004; Clyde, 2000b; George, 2008; Logan & Beuselinck, 2002). Although the literature did not specifically

mention current digital tools such as Vimeo, Slideshare, Ning, Zoho, and RSS feeds, incorporating such resources into the school library's virtual spaces would be an example of the vibrant environment "rich in resources, technologies, and knowledge-building experiences" described in a learning commons (Koechlin, 2010).

The virtual school library represents a considerable investment by the teacher-librarian but also delivers corresponding academic benefits. Lance's (2001) summary of school library and academic achievement focuses on the learning communities which teacher-librarians construct when he remarks that "students perform better academically where the [teacher-librarian]: is part of a planning and teaching team with the classroom, teaches information literacy, provides one-on-one tutoring for students in need...[and values] state-of-the-art technology that is integrated into the learning/teaching processes" (p. 16). His findings also reiterate the [teacher-librarian's] dual role of instructing both staff and students in information literacy. Lance's (2001) summary of the current research linking quality library programs and their positive influence on student achievement, validates the contributions of virtual school libraries:

Library media specialists also must embrace technology to be effective. They must ensure that school networks extend the availability of information resources beyond the walls of the library media center, throughout the building, and, in the best cases, into students' homes. (p. 18)

### **What are Future Predictions about the Virtual School Library?**

Is the addition of a virtual school library to extend the more traditional services of physical library enough? Loertscher (2008), a leading voice in librarianship, suggests that school libraries have moved well past traditional models and now "need a revolution, not evolution" (p. 46). Recent literature describes establishing a school library learning commons – a very different model from the school library and its virtual counterpart - as key elements in a constructivist, student-centered approach toward student learning (Kirkland, 2009; Loertscher, 2008; Loertscher, Koechlin & Zwaan, 2008). Loertscher (2008) describes this learning commons as "both a physical and a virtual space that's staffed not just by teacher-librarians but also by other school specialists who, like us, are having trouble getting into the classroom and getting kids' attention" (p. 46). His creative interpretation of library services calls for a "180 degree flip approach...[which turns] the library web site...into a collaborative virtual learning commons where everyone is sharing resources and ideas...students build their own information spaces to



control the internet...[and the library] becomes a place that everyone owns and contributes to – one giant conversation that’s both a social and a learning network” (p. 48). Loertscher’s ideas – such as teachers delivering assignments through RSS feeds, may seem futuristic but his visions are garnering support in library literature. Todd (2008) also challenges teacher librarians “to rethink the school library as a knowledge commons that both intersects with and bridges the digital and print terrain...and to foster the intellectual, social and cultural growth of our young people in a 24/7 time-space environment” (p. 30). Todd supports the need for placing school knowledge in a wider context when asking teacher-librarians to consider how they can “provide a rich interactive learning community for [students], and to ensure that the deep knowledge and deep understanding, not just of curriculum goals, but of their complex information worlds that they are drawn into, are achieved” (p. 30). Koechlin (2010) advocates for greater shared responsibility of the library and the need for others to “collaborate in the design of learning experiences and teach students what they need when they need it” (p. 23). These library professionals urge teacher-librarians to consider the future direction of school libraries as they construct digital environments and to involve other members of the school community.

### **Summary**

The school library is presently restructuring the delivery of library services in response to the educational needs of 21<sup>st</sup> century learners. The addition of a virtual school library (or school library web page) to supplement and enhance the school’s physical library is one example of the way teacher-librarians are striving to connect with student patrons using the preferred mediums of their digital world. Although there is much information on web site creation, the professional and educational research literature I have selected for this paper used the lens of the virtual school library as a tool for active instructional use by teacher-librarians and their teaching colleagues. I searched for information that offered answers or insights into my personal questions on the topic and chose to retain these questions as headings to guide the understandings of other professionals who may have similar queries.

Throughout this inquiry process, I noted that there was a discernable lack of pertinent empirical research available on the topic of virtual school libraries/ school library web sites. While there is more evidence available on public and academic virtual libraries, (which I deemed applicable to the topic), the need for additional research specifically in the area of school library

programs is apparent to inform quality decision-making for the future. This absence of data may be attributed to our current crisis in school libraries across Canada. This crisis is manifested by school library staffing shortages, the overbooked schedules of teacher-librarians leaving little time to pursue action research initiatives, cutbacks and budget restrictions which hinder thorough explorations of issues, and the sharing of data through professional gatherings and conferences. There may be various contributing factors, from the absence of the common established measures for the evaluation of virtual school libraries, which Clyde (2004) discussed, to little support at various administrative levels – such as the absence of Canadian Association of School Libraries (CASL) and CLA incentives or provincial awards promoting exemplary web sites. Baumbach (2005) also points to a lack of adequate teacher-librarian knowledge, explaining that in the United States web site design was “until recently...not included in preservice library education” (p. 9).

This literature review has provided a useful summary that can assist in the development of an exemplary virtual school library for my secondary school. In discussing the implications of this research I will focus on ways the virtual school library can contribute to library program goals. I would like to explore how the development of the library web site can assist with the continued transformation of our secondary school library. My university coursework has helped me to envision specific library program goals in the area of inquiry learning, information literacy, technology integration and the promotion of teacher collaboration. With the help and support of the entire school community, I am hopeful that we can create a secondary virtual school library that will serve as an interactive digital learning center for our school and yet actively support these related program goals.

## **IMPLICATIONS**

Once the virtual school library has been built, how might it assist the teacher-librarian in the delivery of library program goals?

### **The Need for Information Literacy Instruction**

Sometimes teaching information literacy in the physical library setting presents enough of a challenge in itself, never mind in a digital setting. In a school such as mine, where an information literacy curriculum has never been introduced, there was no established culture with teachers working collaboratively with the teacher-librarian, and digital resources other than the

Internet have never been formally promoted, embedding the virtual school library into the instructional culture of the school seems a daunting task. However, the realities of our technological and information-rich world cannot be denied and teacher-librarians have to find ways to make the teaching of information literacy an essential learning outcome. Barron (2001) notes “information literacy is not an innate knowledge. It must be developed” (as cited in Riedling, 2004, p. 103). A carefully developed school library web site begins by determining the information literacy shortcomings of its community, perhaps through conducting a school-wide survey. The results frame an opportunity to organize and present web resources in ways that encourage the specific information-seeking behaviours students (and staff) need to acquire. Which specific databases will be introduced to support curriculum research projects? Which links to bibliography help and citation makers would be most helpful? Which examples should be archived to best teach the students how to differentiate between a good and less credible web pages? In what way can social responsibility issues, such as plagiarism and copyright, be modeled and taught? Supported by the opportunities for direct instruction that accompany collaborative teaching, information literacy skills can be introduced, developed and reinforced through the virtual school library. I can now appreciate how a virtual school library can provide a means of addressing many of the shortcomings apparent in our secondary school’s library program.

### **Supporting School Library Goals through Information Literacy Instruction**

When I began my educational leave I was particularly focussed on learning more about how to create a scope and sequence for information literacy; however, my enthusiasm for creating an information literacy plan was sidetracked by other aspects of teacher-librarianship. I can now envision how promoting information literacy via the school library’s web site can assist in achieving the additional library program goals I have since developed – such as introducing inquiry learning and a common research inquiry plan, incorporating greater technology use into lesson design, and encouraging true collaborative teaching. I am encouraged by Harris’ (2003) comments about information literacy, as she notes the advantages of embedding information skills into other initiatives and how students were able to achieve better information literacy skills than if these same skills were taught in isolation:

In terms of information literacy and student learning, Kuhlthau found that the most

significant improvement occurred in schools where other reform efforts were taking place as well, specifically efforts related to more constructivist approaches to learning that emphasized inquiry in the research process. (Harris, 2003, p. 219)

I now appreciate how the virtual school library develops as a reflection of both the teacher-librarian's vision for the library and the school's established goals. These beliefs cannot help but be echoed throughout the fabric of the site, especially when they have been carefully considered as part of the site's purpose. Incorporating the interests and needs of others creates and further enhances, customizes, and values the school library web page.

### **Virtual School Library's Role in Knowledge Management**

Todd (1999) describes the process of creating a web site as knowledge management. He explains "knowledge management needs to be taken seriously as an issue by school librarians; researched, understood, and evaluated in order to ensure effective development of library services and the role of the school librarian" (as cited in O'Connell, p. 25). Teacher-librarians are considered knowledge management experts and should display leadership by keeping up with constantly changing digital technology and information sources and finding ways to disseminate this information with others. This may translate into searching out quality digital resources, exploring Web 2.0 tools, investigating new trends, reading professional literature, attending or presenting in-service sessions, demonstrating best practices, and exploring new ways to share this knowledge with others. This does not presume that teacher-librarians must have all the answers but they should be able to model the process of how to go about finding the answers to information questions. Introducing a consistent school-wide process for research inquiry is another example of how teacher-librarians can help manage the acquisition of knowledge.

It is through such knowledge-related initiatives as establishing the school library web site, that teacher-librarians' roles will become more evident within the school community and the work they perform will become less 'invisible' (Oberg, 2007). Perceptions of teacher-librarians as dynamic and contributing school colleagues are strengthened as teachers recognize their interest in and support of classroom teaching. Administrators also realize the leadership role of teacher-librarians as they integrate the library into school improvement goals. Students come to appreciate their abilities in assisting them successfully achieve information needs. These are important perceptions to develop, especially in these times when advocacy for teacher-librarian positions and the value of school library programs is such a critical concern. In my school,

establishing my credibility with regards to knowledge management has taken time to develop, but positive growth has been noticed. Todd (1999) explains that developing an effective site “takes strong leadership and active promotion of successes” (as cited in O’Connell, 2002, p. 25). I am encouraged by the realization that I can rely on the experience and knowledge of others to help develop the library’s site, while still maintaining guidance to ensure that each addition will reflect the site’s overall purpose and serve to enrich this virtual *place*.

### **Developing a Common Plan for Information Literacy with Administrative Support**

Creating an information literacy plan begins with teacher-librarians earning the support of the school’s administration. Both Oberg (2007) and Zmuda and Harada (2008) speak highly of the importance of teacher-librarians garnering the respect of their administration through building professional credibility, aligning library goals to the principal’s vision for the school, or providing successful communications. When Haycock describes the need for establishing a school-wide master information literacy plan developed with input from teachers and teacher-librarians, he explains this will be more successful with the auspices of the school’s administration (as cited in Valenza, 2005a). Teacher-librarians may demonstrate leadership by identifying the related information literacy skills that are contained in the prescribed learning outcomes in different subject/grade levels or obtaining a similar list already developed by a provincial colleague. Through cooperative discussions with a staff committee, decisions could be made about which grade levels prove best for the introduction of particular information literacy strategy – such as effective search techniques, how to evaluate web pages for authority or bias, how to locate and record citation information, or navigate a database. A valuable information literacy plan could be created to use as a reference for planning collaborative lessons. Setting up this school-wide plan for information literacy instruction would ensure that all students will have opportunities to be taught essential information literacy skills, and provided the necessary repetition with which to strengthen these understandings.

Creating such a school-wide initiative would be difficult were it not for principal support. Principals may provide the initial release time needed for consultation, but it is their ongoing encouragement in the use of the information literacy that will support its success. I now recognize the importance of communicating the need for a school-wide information literacy plan with my administrator and explaining the impact of the school library web page on student

learning. If I can approach this conversation by illustrating ways that the library goals can serve to support the principal's school-wide goals, I am sure that an action plan can be agreed upon. For example, in our school two areas that the library's information literacy plans can support are integrating technology into lesson planning, and greater access to quality digital resources.

### **Instigating a Common Plan for Information Literacy with Teacher Support**

Valenza (2007a) reports that her school's virtual school library is the first place staff and students visit to obtain quality information. I dream of the day when one of our students or a staff member will write a similar comment about our school library web site on a feedback survey because this will indicate that I have achieved a key vision for our library program. Harris (2003) describes information-literate students as "products of a coherent information literacy curriculum that features a process approach, course-integrated instruction, inquiry-based learning, and collaboration between teachers and [teacher-librarians]" (p. 219). Possibly the most pressing goal I need to address in my own school is fostering teacher collaboration with the school library. I believe that the school library web site can do a diligent job of supporting this endeavour.

Providing teachers with easy access to information that will assist them in their work is a key approach to developing the credibility that will entice them to enter into collaborative practice with teacher-librarians. If the virtual school library offers such features as quality digital resources, connections to subject-related Pathfinders, archives of interactive banks of lessons, reference guides in information literacy practices, and bibliographic assistance helping, it will soon prove an essential resource for teachers. Combine this support with instructional opportunities such as the teacher-librarian's offer to help design lessons that incorporate essential information literacy skills, or teach class demonstrations of how to use a database housed on the web site, and collaborative relationships with teaching colleagues can be fostered.

Beyond teaching the identified skills a school-wide information literacy plan may outline, important outcomes are the construction of authentic knowledge and the ability for students to learn to think critically. The teacher-librarian may be demonstrating new skills to students at the front of the class, but by the same token the teacher is also receiving professional development instruction in current best practices. Harris (2003) explains that:

More than just knowing "how to use the library," we want our teaching to produce students who are independent seekers and thinkers. We measure our success by

students who can approach each new type of information problem with flexibility and resourcefulness, who can navigate new information systems without losing themselves in the mechanics, and who are able to evaluate and synthesize the information they find. But outcomes like these require the work of many and take time to fully emerge. (p. 221-222)

Teacher-librarians cannot accomplish such goals without the collaborative support of their colleagues. There must be numerous opportunities for information literacy skills to be practised and reinforced with time built into lesson design to encourage student exploration and thinking. Students come to information-seeking activities with their own habits of mind and will need critical experiences to successfully shift their thinking patterns and searching practices. Scaffolding support archived on the school library web page will assist with retrieval of this new knowledge. A teacher can also reinforce new information literacy understandings during classroom instruction, computer lab sessions, and through the design of thoughtful assignments and homework activities. Teachers will likely be more generous with teaching time if they are made aware of these understandings. The long-term goal is to encourage students to transition this new knowledge and directly apply it in their own day-to-day lives, post-secondary learning – especially in light of the proliferation of online coursework, and their future endeavors in the business or work world.

### **Collaboration as an Approach to Virtual School Library Integration**

One of the major understandings I have acquired from my investigations of this topic is that developing and maintaining a virtual school library is not a singular activity. It takes an entire school community to create an effective library web site. The teacher-librarian may initiate the project, but by encouraging opportunities for involvement and collaboration, the web site can develop into a school-wide venture involving the talents and input of students, support staff, teachers, administrators and even the community beyond the school. Through each one of these interactions and contacts, the virtual school library develops into a stronger communicative and instructional portal that is slowly enhanced and built upon to reflect the interests and needs of its users. The library begins to extend its reach into classrooms and beyond into the student's home world as its relevancy is established through thoughtful, well-designed lessons that demonstrate its pertinence. Through this close connection to collaborative instructional activities, the virtual school library gradually begins to become part of the fabric of the school, as teachers come to

depend upon its resources to teach their courses, as students begin to turn to it for information and timely assistance, and as the services of the physical and virtual libraries gradually combine to become a hybrid identity.

### **School Learning Commons Reflections**

Although much of my discussion on the implications of the virtual school library on library program goals has focussed on information literacy, I must also note another concept that speaks to the future of these information portals. While researching the topic of virtual school libraries, I read articles that described the digital and physical aspects of the school library and how this could be extended and reimaged as a new possibility – a school learning commons. As mentioned in the literature review portion of this paper, Loertscher (2008) describes the school library learning commons (an idea developed with colleagues Koechlin and Zwaan) as both a “physical and a virtual space that’s staffed not just by teacher-librarians but also by other school specialists” (p. 46). Loertscher also details the inclusion of an “experimental learning centre [which] aims to improve teaching and learning by offering professional development sessions and resources that are tailor-made to each school’s greatest needs” (p. 46). In this learning commons new initiatives will be field-tested and the latest technologies explored before dissemination to the greater school community. Both the physical and virtual library will be flexible entities with furniture and parameters changed to accommodate instructional requirements.

At first I viewed these conceptualizations as visionary, especially in my own library situation, where I am still trying to promote the notion of using databases; however, as I’ve worked through the development of this paper, I reflected on the various permeations of the virtual school library and how they can serve to encourage new conversations, reveal new possibilities, and facilitate both Web 2.0 communication and creation. I am beginning to grasp the approach that Loertscher and others (Loertscher, Koechlin & Zwaan, 2008; Todd 2008) are proposing in this future model for school libraries. Although our secondary school library has made great strides towards current practice, I realize that it is a quantum leap from the idealized learning environment envisioned by Loertscher and others; however, I also believe that in this shifting, technology-inspired world it is wise to remain flexible. In the back of my mind I will let these ideas percolate and consider new ways to incorporate interactive communication and



expression into both the virtual and physical school library. Cooper-Smith (2008) encouraged further contemplation when she suggests teacher-librarians serve only as managers and turn the ownership of the school library web site over to students to create a true Web 2.0 learning space (p. 38). I am not convinced that this decision would be appropriate given the present situation in our library and the other pressing library program goals I need to achieve, but this idea does encourage me to consider the importance of greater student input in building these digital portals. Kapitzke and Bruce (2006) have also opened my eyes to new interpretations of the combined hybrid nature of school libraries. I have come to identify with the term libr@ry and plan to incorporate this philosophy of fusion into my beliefs about how library services can be melded. After this exploration of the topic and reflection on the question, I am convinced that the virtual school library is a necessary part of a current school library program and an integral avenue to promoting the development of information-literate students.

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