Treasure Mountain

Canada

Leading Journeys: Papers of Treasure Mountain Canada Research Retreat, Edmonton, Canada, June 2-3, 2010

Compiled by: Carol Koechlin

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2010

Hi Willow Research & Publishing

ISBN: 978-1-933170-61-9

Hi Willow Research & Publishing
312 South 1000 East
Salt Lake City UT 84102-2411

Distributed by LMC Source
P.O. Box 131266
Spring TX 77393
800-873-3043
sales@lmcsource.com
http://lmcsource.com

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PREFACE

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Many people ask, "Where did the name Treasure Mountain Canada come from?"

The first Treasure Mountain research retreat was created in the United States in 1989 by David Loertscher, Blanch Woolls, and Phillip Turner – all leaders in the field of school libraries. Their vision was to provide researchers in school librarianship an opportunity to share their research, gather ideas, and interact with practitioners in the field. The synergies created by including researchers and practitioners together in the same conversations produced positive benefits and directions for the whole school library community. Since 1989, there have been a total of fifteen research retreats in the United States, and several library leaders from Canada have either attended or used the resulting published papers.

Education in Canada is under the jurisdiction of the provinces and territories, thus the development of school library programs has not been consistent across the country. However, collectively, Canada has been viewed as a leader internationally. In 1982, Ontario's Ministry of Education published ***Partners In Action: The library resource centre in the school curriculum***, and this became a seminal document for many outstanding program guidelines subsequently developed in other provinces, the United States, Australia and beyond.

The economic downturn in the 1990's resulted in more accountability for the spending of public money. School library programs were impacted, along with many other programs. The positive outcome of this adversity is the increased emphasis on research and evidence-based practice which will lead to stronger and richer programs within the context of the whole-school learning community.

The last thirty years have see the decline in undergraduate and graduate programs examining the role of teacher-librarianship and school library programs in K-12 education. Thus the time is right to develop a national movement to aggregate existing research, encourage new research, and to foster school library programs as an integral part of student achievement.

This inaugural Treasure Mountain Canada is truly a think tank. The decision to continue or not will be made at this event. And if the group decides to continue, they will be pioneers in the shaping of subsequent events.

Edmonton, Alberta
June 2 and 3, 2010.

Provincial and Territorial Guidelines for School Library Programs

ALBERTA
Focus on inquiry: A teachers' guide to implementing inquiry-based learning. Alberta Learning, 2004
Focus on research: A guide to developing student research skills. Alberta Education, 1990
Focus on learning: An integrated program model for Alberta school libraries. Alberta Education, 1985

BRITISH COLUMBIA
Developing independent learners: The role of the school library resource centre. British Columbia, Ministry of Education, 1991.

MANITOBA
Resource-based learning: An educational model. Manitoba Education and Training, 1994.

NEW BRUNSWICK
Standards and practices for New Brunswick school libraries. New Brunswick Teachers' Association Library Council, 1989.

NEWFOUNDLAND AND LABRADOR
Learning to Learn: Policies and guidelines for the implementation of resource-based learning in Newfoundland Labrador schools. Newfoundland and Labrador Department of Education, 1991.

NORTHWEST TERRITORIES
Guidelines for the development of school information centres. Northwest Territories Education, 1990.

NOVA SCOTIA
Nova Scotia school libraries: Standards and practices. Nova Scotia Teachers' Union, 1987

ONTARIO

Together for learning: School libraries and the emergence of the Learning Commons. Ontario School Library Association, 2010.

Information Literacy and equitable access: A framework for change. Ontario Ministry of Education, 1982.

Partners in action: The library resource centre in the school curriculum. Ontario Ministry of Education, 1995.

PRINCE EDWARD ISLAND

School library policy for the province of Prince Edward Island. Prince Edward Island Department of Education, 1989.

QUEBEC

Direction générale d'évaluation et des resources didactiques. Also: Library resources in the schools: Pedagogical and organizational aspects [English translation]. Québec Ministère de l'Education, 1987.

SASKATCHEWAN

Connections: Policy and guidelines for school libraries in Saskatchewan. Saskatchewan Ministry of Education, 2008

Resource-based learning: Policies, guidelines and responsibilities for Saskatchewan learning resource centres. Saskatchewan Education, 1988.

In Draft:

Manitoba and Saskatchewan Ministries of Education are working together to write Cataloguing *Standards: A Resource for Manitoba and Saskatchewan School Library Personnel.* This document is scheduled to be completed during the next school year

Alberta Learning is in the final editing stages of new library policy that will be released in the Fall of 2010.

Introduction

David V. Loertscher, Professor
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San Jose State University, San Jose, CA,

Congratulations, teacher librarians of Canada. You are on the move!

The Treasure Mountain Research Retreat, has had as its purpose for over 20 years the mixing of ideas of researchers and practitioners as a means to move the profession forward. Judging from the response from Canadian scholars and practitioners to the call for papers, this collection provides an amazing response from the entire nation on a topic of importance to every Canadian child and teenager.

One usually thinks that a conference of this kind would be an opportunity to hear from the best scholars on the topic at hand with some discussion of ideas. However, this conference will use the power of technology in innovative ways. Using the power of the collaborative nature of Google Spreadsheets, everyone in the conference will be a presenter; a respondent; a contributor of ideas; a synthesizer of ideas, patterns and trends; and, will help formulate next steps for action on the local, provincial, and national level. This level of collaborative intelligence and knowledge building is possible only because the technology used makes this opportunity possible. Readers of this proceeding should access the **http://tmcanada.pbworks.com** site to discover the work of the conference and also its recommendations.

In looking across the papers, six important themes emerged which were used to structure the face-to-face interaction time on June 2-3

- From Transmission to Transformation (Information to Knowledge Building Journeys)
- Towards a Transformative Pedagogy (Traditional to Learner Directed)
- From Teacher Librarian to Learning Leader (Isolation to Change Agent)
- From School Library to Learning Commons (Library Culture to School Wide Culture)
- From Information Literacy to 21st Century Skills
- Building both narrative and expository readers

In full-audience presentations and table talks, each participant will be able to investigate fully the ideas represented in the papers and at the same time synthesize and add ideas theme by theme to the spreadsheet. As the conference comes to a conclusion in a big think, a collaborative synthesis across syntheses will allow

everyone to build collaborative recommendations for action across the entire idea spectrum.

Treasure Mt. Canada comes at a critical time in Canadian education as two major documents from Ontario and Alberta pave the way for dynamic change from the concept of a school library and computer lab to a client-centered learning commons. With the continued infusion of technology into the lives of children, teens, and the classroom, the entire landscape and environment of education and social interaction demands a different response from teacher librarians, curriculum leaders, administrators, boards, and parents. The warehouse approach of producing minimally competent students is giving way to pushing each learner as far toward excellence as is possible. The need to build a worldwide and competitive thinker, creator, problem solver, and innovator has never been more critical to the nation as a whole.

Attendees at Tres. Mt. and those reading these papers are encouraged to reexamine every traditional tenant of librarianship, technology, and education. Do some 180 degree thinking using in light of a changed world technology, economy, global connections, political climate, and a host of other emerging fronts. What is it that would propel young people into a changing future? What are the best gifts this generation can give to the next? And, how can this new generation of digital natives learn how to turn their social skills into productive learning skills? As teachers learn to take their place alongside the learner rather than always in front, how can teacher librarians, teacher technologists, and other specialists in the school drive their expertise into the center of teaching and learning? The challenges are rich with possibilities.

So, let the journey begin.

Part I: Points of Departure

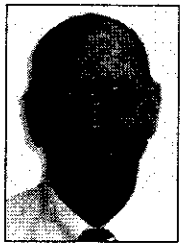
one 2010

Scan's regular Research columns is refereed by Dr Ross J. Todd. Research columns continues to build a value for research as a process, strengthening the theoretical basis for the practice of teacher librarianship. It gives particular emphasis to demonstrating how research can inform practice through the application of findings, questioning of assumptions, and identification and analysis of practical problems.

This issue features the executive summary of the School libraries 21C discussion report. This executive summary and the full report are available online at School Libraries and Information Literacy <www.curriculumsupport.education.nsw.gov.au/schoollibraries/>.

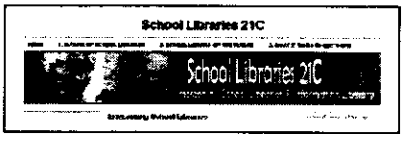
School libraries 21C:
the conversation begins

Lyn Hay *is a lecturer in Teacher Librarianship in the School of Information Studies, Faculty of Education, Charles Sturt University.*



Dr Ross J Todd *is Associate Professor, Director of Research for the Center for International Scholarship in School Libraries (CISSL), School of Communication, Information and Library Studies at Rutgers, The State University of New Jersey, USA.*

This article presents an executive summary of the findings and recommendations published in the *School Libraries 21C* discussion report commissioned by the School Libraries and Information Literacy Unit of the NSW Department of Education and Training in June 2009. The complete report is available for download via the School Libraries and Information Literacy website <www.curriculumsupport.education.nsw.gov.au/schoollibraries/>. The authors acknowledge the content of this report is not an end in itself. It is just the beginning of a conversation within the NSW DET community involving the envisioning of school libraries of the future for NSW government schools.



We strongly encourage all teacher librarians within their school community to engage with the ideas, issues, concerns and challenges presented in this report, as well as with other challenges that exist within the local school context. The re-engineering of school libraries into flexible, dynamic, high-tech 21C learning centres designed to prepare students to function effectively in an increasingly complex informational and technological world depends on your investment of time, creative and innovative thinking, and carefully considered strategic planning to make this vision for school libraries of the future happen.

Background and purpose

As part of a *School Libraries Futures Project*, the moderated discussion blog *School Libraries 21C* was created and hosted by the School Libraries and Information Literacy Unit to gather a diverse range of viewpoints and perspectives on the status and future of school libraries in New South Wales government schools, with a view to identifying directions, challenges, and support for the continuous improvement of the information landscape in NSW government schools. Motivating the establishment of the blog has been the School Libraries and Information Literacy Unit's intent to provide a framework for a process of reflecting on what is best in our school libraries, and setting the agenda for the future.

The online discussion took place from June 1 to August 3, 2009. The invitation to participate in the blog was extended by the Director, Curriculum K–12, NSW Department of Education and Training (DET), to Regions, principals and schools. An invitation was also distributed nationally and internationally via email, state, national and international mailing lists and blogs, and *Twitter*. The blog discussion was guided by Lyn Hay at Charles Sturt University, NSW, and Dr Ross Todd at Rutgers, The State

University of New Jersey, USA. The blog was moderated by Colleen Foley, Leader, School Libraries and Information Literacy Unit, Curriculum K–12 Directorate. Respondents were encouraged to undertake background reading provided through *Scan*, 'School libraries building capacity for student learning in 21C' (Hay & Foley, 2009). The themes and focus questions for the discussion are shown in Table 1.

The themes and focus questions for the discussion were:

1. The future of school libraries
   - (1a) Do we need a school library in 21st century schools?
   - (1b) How, if at all, do current school libraries impact on student learning?
2. The school library of the future
   - (2a) What would a school library of the future look like?
   - (2b) What would be its primary responsibilities and functions to meet the learning goals of schools?
   - (2c) What would be the essential work of the teacher librarian?
   - (2d) What would be its key impacts on student learning?
3. What will it take to get there?
   - (3a) Identify strategies / initiatives / support at the practitioner level
   - (3b) Identify strategies / initiatives / support at the school level
   - (3c) Identify strategies / initiatives / support at the NSW Department of Education level

Table 1 Themes and focus questions

Participation in the blog

Table 2 shows the extent of participation and responses in the blog. Submissions were posted by individuals and school, team and professional network groups. Participants provided details such as: government/non-government school, position in school, and if a group response, the nature of the group. Most respondents were teacher librarians, and it might be assumed that they have a vested interest in their roles and their futures, and responses may be linked to the ongoing direction of teacher librarianship in Australia, and the professional position of teacher librarian in schools. The absence of substantive input from people outside of the teacher librarianship profession emerges as a concern. Reasons for this are only speculative: lack of interest in the future of school libraries; do not see the educational value of school libraries; other pressing concerns which have deflected involvement (such as the DER – NSW laptops for schools initiative); or not feeling comfortable sharing one's views on such a public online forum.

Analysis of responses

The posts were analysed using qualitative approaches. The purpose was to identify common and pervasive themes and relationships that would provide key insights into the questions posed on the discussion blog. Our approach to analysis was based on constant comparison to establish dominant concepts and themes, and then to establish relationships and patterns. Both blog facilitators did analysis and coding independently and then discussed initial schema to formulate a common analytical response and to establish dependability and credibility of data analysis.

The complete report presents findings and commentary based on blog responses, followed by a set of key recommendations which are proposed to provide individuals, school

Theme and questions	Number of posts
1. Future of school libraries – Total	**105**
(1a) Do we need a school library in 21st century schools?	66
(1b) How, if at all, do current school libraries impact on student learning?	39
2. School library of the future – Total	**67**
(2a) What would a school library of the future look like?	32
(2b) What would be its primary responsibilities & functions to meet the learning goals of schools?	8
(2c) What would be the essential work of the teacher librarian?	21
(2d) What would be its key impacts on student learning?	6
3. What it takes to get there – Total	**53**
(3a) Identify strategies / initiatives / support at the practitioner level	17
(3b) Identify strategies / initiatives / support at the school level	12
(3c) Identify strategies / initiatives / support at the NSW Department of Education level	24
TOTAL	**225**

Table 2: Number of blog responses per question

communities, and the system with a way forward in envisioning the future for school libraries within the NSW Department of Education and Training. The commentary in the full report draws heavily on statements made by respondents in order to establish the evidence base for claims made. Therefore, we encourage school communities to engage with the ideas, issues, concerns and challenges outlined in the detailed report.

1. The future of school libraries

The school library is an important part of school life

Respondents were asked to present a case for school libraries in 21st century schools, and to support claims made with argument and evidence. Consent for school libraries came from within the teacher librarianship community, with little response from outside of this professional group. The clear strong response was that yes, school libraries are needed–emphatically so. There was also recognition that school libraries were increasingly important, particularly, *as both students and staff try to keep pace with rapid developments in technology and the ways in which information is accessed, shared and communicated* (1A.43). Its central role in the culture, learning and ecology of the school was also identified: for example, *Libraries in schools are like a huge tree in a vast paddock - in that they have their own ecosystem. Pull that tree out and what happens to the life that relied on it* (1A.5)?

The posts provided a cogent set of reasons why schools need school libraries, some of which is briefly outlined here, but for a full account refer to pages 4 to 8 of the full report.

School libraries provide a common information grounds for supporting learning across the school and fostering the development of deep knowledge through the provision of accessible resources, and the development of sophisticated information and technology understandings and skills.

The burgeoning growth of digital information and the emergence of participatory and collaborative web environments were further presented as arguments for the provision and maintenance of school libraries, *This tends toward a conclusion that libraries are vital to both education and the national intellectual life* (1A.18). As one high school principal observed:

> *21st century school libraries remain the backbone of schools. They are changing - reflecting our world and our values. There will always be the need for resources - books, media, electronic... A critical feature of this will always be the ways in which information processes are taught and dispersed throughout student, teacher and parent world. Crafty teacher librarians who are at the cutting interface of technology will be needed to meet the very much individualised learning needs of clients..... I see a thriving centre of learning–and something that is integral to the way the whole school functions* (1A.36).

Against this backdrop of the information-to-knowledge journey of students, some respondents spoke of the school library as a *knowledge commons* or a *learning commons*–a common place, *a shared space for all students and the community* (1A.43). This conception gives emphasis to the library as an intellectual agency for developing deep knowledge and understanding, rather than that of information collection. According to one respondent:

> *One major advantage of this 'commons' approach is the marrying (and in many cases, reconciling!) of library/information and technology departments, people, resources and services within an educational institution to better reflect this convergence of information and technology within a digital society* (1A.15).

However, respondents often lamented that others in the school did not see it this way or perceive this to be its potential, which is outlined in the full report.

... a common place across the school for investigating and experimenting with information, examining multiple perspectives...

Pedagogical fusion and digital citizenship

The concept of *pedagogical fusion* aligned with information literacy development emerged as an argument for school libraries. The notion of pedagogical fusion centres on the school library providing a common place across the school for investigating and experimenting with information, examining multiple perspectives, in an environment where students are guided by professionals and given appropriate instruction to effectively utlilise information and the most appropriate technology tools to support student achievement. As such, it is conceived as a unique learning environment–common, central, flexible, open, providing the opportunity for teams engaging in pedagogical experimentation to access and use information and web tools to empower learning through creativity, discovery, inquiry, cooperation, and collaboration.

The school library, with access to information technology to support both information seeking, as well as the tools for engaging with found information to build deep knowledge, was seen as a critical landscape to foster students' appropriate and ethical engagement with diverse information sources, and to be critical and safe users of this. Accordingly, the school library becomes an important zone of intervention and socialisation process for learning how to function effectively in the complex informational and technological world beyond school.

Balance and equity were critical concepts in arguments for school libraries. School libraries have the

opportunity to provide not just a balanced collection that can serve the needs of the whole school community, both in print and in digital form. Perhaps more importantly, this provides for a common, equitable and stable access to all, regardless of socio-economic status, and regardless of access to information technologies out of school. It was viewed that *Equity is of particular importance in times of economic uncertainty when there may be no resources at home* (1A.27) because the school library *may well be the only place where students of particular socio-economic and cultural backgrounds have access to emerging technologies and resources* (1A.47).

It was clear that access to a quality school library removes barriers and constraints to learning with information technology, system, network, and time barriers, as well as local constraints such as scheduling barriers.

Repositioning the school library as a flexible and dynamic learning space

This was seen as an essential challenge to enabling school libraries to play a central role in 21st century education. Consistent with this idea, the arguments were presented that the school library as a common learning space needs to be flexible, fluid, even providing opportunities for students and teachers to create their own learning space–customisable learning spaces–where there is immediate access to furniture, technology, information, instruction, facilities and expertise. There was a recognition that school libraries as physical entities must change in accordance with educational and informational developments:

> *...web searching is 24/7 and anywhere with an internet connection. We have to reconstruct access to knowledge and professional expertise in this 21st century www paradigm. And this means must embrace a new service delivery model* (1A.6).

And as part of this evolutionary process of change and development, some participants saw the need of shift in focus to *a focus on learning action, rather than information provision* (1A.25).

The challenge: articulating how school libraries impact on student learning

Given that the majority of the responses were from teacher librarians, it might be expected that they were in a strong position to present evidence of the impact of school library initiatives on student learning. The opening remarks to this theme in the discussion blog put some focus on the body of research providing evidence of the impact of school libraries on student learning, such as *School libraries work!* (3rd ed, 2008). In addition, respondents were explicitly encouraged to provide local evidence of how their school library impacts student learning and how the work of the teacher librarian is central to student achievement.

Two key interpretations to the question were presented. The first interpretation to the question centred on specifying actions which are assumed to lead to student learning impacts (which were not specified). The assumption is that actions and processes undertaken automatically imply positive learning outcomes, and accordingly, there was little attempt to state the actual outcomes, or to document how the impacts based on actions were measured. There was clearly the implicit assumption that by virtue of actions, outcomes happen, and that these are positive, immediately visible and known. The majority of responses took this stance: *...often outcomes and impacts are assumed some how to be lurking in there* (1B.30).

The second interpretation of the question focused on identifying actual outcomes and impacts of school library actions. Overall, this was weakly addressed, with little attempt to make explicit and measure the relationship between inputs, actions and student outcomes. There was little evidence beyond unsystematic and anecdotal accounts of the impacts and benefits in terms of student learning. Respondents by and large responded with an implicit belief that good things just happen by virtue of actions, and that through these actions there is a positive relationship between quality library program and student achievement:

> *As with all teaching and learning experiences a quality program enhances student outcomes. Quality library programs develop quality literacy skills. A well resourced library gives equity to students* (1B.24).

They often stated that school libraries had a *definite* impact on student learning, even though in most cases the specifics of this relationship were not articulated. This raises a fundamental concern about the invisibility of outcomes, perhaps contributing to a wider educational perspective that school libraries do not contribute significantly to student learning outcomes.

Moving from teacher librarian *actions* to student *outcomes*

Considerable attention was given to specifying the actions undertaken by teacher librarians presumed to generate learning outcomes, and these encompassed a wide range of instructional and service initiatives. A number of other factors were identified, including:

- A strong view that the professional expertise of qualified teacher librarians was central to enabling the actions.
- The belief that developing a range of information- and technology-based competencies and understandings in students is *the* central action of the teacher librarian in supporting student achievement.
- The provision of quality resources was also viewed as a central action leading to student achievement.

- Collaborative actions were seen as a key input leading to student outcomes.
- The acknowledgment that personal interactions and interventions underpin actions that lead to student outcomes.
- A range of actions centred on fostering a reading culture within the school.

Approaches to evidence collection and outcomes

The responses provided only limited identification of approaches to measuring and collecting evidence of student outcomes as a result of library interventions and services. These included: *question, survey, interview, reflect on what we see happening in the classroom. We need to ensure as tls we are using criteria to assess our students learning and keep these records just as normal teachers do* (1B.27), as well as using *valid, measurable, pre- and post-tests* (1B.30), and a range of library use statistics such as *OASIS Library borrowing statistics* (1B.30), and *statistics to see how my library is running* (1B.26).

In the main, however, claims of outcomes appear to be based on personal experience, intuition, unstructured observations and / or anecdote, and informal approaches, rather than systematically gathered, empirical evidence, for example:

> *I know that I make an impact on student learning every time I interact with a student and staff member in and out of the library–however small* (1B.12).

Overall there was weak elucidation of specific outcomes as a result of school library initiatives. Typically these centred around claims related to mastery of information literacy competencies and reading enrichment, without any evidence to back up the claims. There was some limited documenting of specific empirical evidence. One school principal said in relation to reading outcomes:

> *Our school has a 20 min silent reading program each day ... Since its inception, reading scores at national test instruments have usually been at or above state average* (1B.19).

A range of enablers and barriers to collecting and documenting evidence of learning outcomes were identified. Enablers included: qualified teacher librarians and trained support staff; support of the executive (in particular the principal) in terms of the vision building and support for the instructional role of the teacher librarian; library structures, such as flexible timetabling, not providing teacher release, and operating hours of the school library; a collaborative, inclusive culture that supports the teacher librarian as a teaching partner; and advocacy informed by evidence.

More prevalent in the responses were identifying barriers or hindrances to the collection of evidence. These revolved around lack of action of others, particularly school executives, systems, context, structures, management, and staffing, all of which seem to work against collecting evidence. Respondents in the main appeared to be waiting for barriers to be resolved before evidence could be gathered. Major barriers to collecting and establishing evidence included: lack of time on behalf of teachers to collaborate with the teacher librarian; lack of support staff to relieve the teacher librarian from library technician duties; being timetabled to supervise senior students in the library; lack of principal support; and school structures and culture not formally supporting an evidence-based practice approach. A complete analysis of respondent contributions and commentary can be found on pages 8 to 13 of the full report.

2. School libraries of the future

What would a school library of the future look like?

The second set of blog discussion questions invited participants to take part in re-imagining school libraries of the future. Twenty five people took part in this re-imagining process. From these responses, we have constructed a set of principles underpinning 21C school library design. These include

- A facility which features *fluid library design* that allows for the customisation and personalisation of learning, where space is iterative, agile, transitional, transformational, evolving, and shifting based on the needs of individuals, small groups and whole classes.
- A *blended learning environment* which harnesses the potential of physical learning spaces and digital learning spaces to best meet the needs of students, teachers and parents, both in school, at home or by mobile connectivity.
- A learning centre whose primary focus is on *building capacity for critical engagement*–giving emphasis to thinking creatively, critically and reflectively with information in the process of building knowledge and understanding.
- A *centre of learning innovation* where teachers and teacher librarians are involved in creatively designing learning experiences by way of testing, trialling, and experimenting with information and tools to bring about the best knowledge outcomes for students.
- A learning environment that demonstrates *the power of pedagogical fusion*, where pedagogy underpins the decision making behind a school's information architecture–where technology infrastructure and support services, networked information services and provision of access do not restrict innovative and flexible use of space, resources or expertise.
- A facility consisting of *seamless search interfaces* enabling intuitive access which supports 'conversation' with the user as an interactive tool for inquiry and discovery.

- A facility which seeks a *balance between print and digital collections* and which does not privilege one format over another, consistent with the multi-format nature of our information world.
- A centre that supports *literary learning*, where students become immersed in imaginary worlds, explore personal reading interests, develop sustained voluntary reading practices, develop reading for meaning and independence as critically-capable readers.

Against the backdrop of the recent Australian Government funding program, Building the Education Revolution in K–12 Schools (BER), is Gillard's (2009) statement that:

> *The construction of 21st century libraries is the first priority for Primary Schools for the 21st Century, followed by the construction of multi-purpose halls, or in the case of smaller schools, covered outdoor learning areas. These buildings will provide students, teachers and the wider school community with access to a range of high quality resources, information and cutting edge tools to support learning and improve the quality and diversity of learning environments.*

A number of respondents saw the need for immediate action regarding building a vision to inform the design of their school's new library facility.

A number of respondents highlighted the core function of the school library of the future as needing to support student development in critically engaging with an increasingly complex world of information, and implementing innovative pedagogy centring on inquiry. However, this re-imagining of school libraries for the future also raised some concerns. These included the need for increased levels of library staffing to support a blended learning environment, the demands of an increasingly technology intensive role and the need for teacher librarians and library support staff to continually keep up-to-date with new and emerging technologies, and ensuring the school library remains *connected* with the broader school community:

> *It seems to me that our school library webpages, online pathfinders, blogs, wikis, Moodles, etc–and whatever else is yet to come in the virtual world - are going to be just as important, or more important, as the new BER library buildings* (2A.20).

The desire to see a future where all school libraries are well resourced, with the introduction of guidelines or standards within a system (or even nationally) to ensure a consistent and professional approach to the resourcing of school libraries was also raised as a concern:

> *If we are talking about equity, if we are talking about improving literacy and information literacy, if we are talking about authentic, resource-based learning and quality teaching, we must agree that ALL Australian students deserve professional school library services managed by professionally trained teacher librarians* (2A.24).

One message from the discussion was clear – those people in teacher librarian positions need to leverage opportunities for vision building to become empowered as their school's information professional, as illustrated in the comment below:

> *What I also find empowering is your statement, 'Imagine an activity and we will make a space for it.' This resonates to me a vision and willingness on behalf of the information professional in a school to be flexible, to be challenged (and thrive on such challenges!), and ultimately, be an information leader* (2A.7).

An expanded version of the above, with commentary on what a school library of the future might look like can be found on pages 15 to 18 of the complete report.

Primary responsibilities and functions of a school library of the future

A number of themes emerged in relation to responsibilities and functions. There was consensus that the primary goal of a school library of the future should be to support the intellectual engagement and development of children and young people, and *developing intellectual engagement* was even proposed as a way of recasting the primary function of a school library of the future. As one respondent stated, this *may well be a good umbrella term for what future school libraries will be able to do best* (2B.5). One school principal viewed the central tenet of this as supporting the information-to-knowledge journey, *to research and outsource materials needed by clients to enable them to follow their learning journey* (2B.3), using different types and styles of resources, and helping student understand how meaning is constructed from a variety of sources. This included learning support for teachers as well as students in a uniquely flexible, responsive and inclusive learning space.

There was consensus that the foundations of a school library program of the future should be based on understanding the dimensions of authentic learning and authentic research, where learning focuses on both formative and summative assessment, with teachers and teacher librarians working together diagnostically to identify learning dilemmas and plan for instructional interventions at the point-of-need. Teachers and teacher librarians would be provided with professional development opportunities to learn together to develop instruction that is targeted to support knowledge creation, with a focus on individual and collective knowledge building activities engaging Web 2.0 and new/emerging technologies.

It was further suggested that if a school library of the future is to meet the above responsibilities, the school and/or system would recognise that planning and development time is part of instructional design, not additional to normal practices. Thus the provision of time was viewed as best practice, that is, making time for teachers and teacher librarians to plan their collaborations

would need to be a high priority in a school library of the future. Concerns were also raised in this section about how a school library of the future could provide such affordances, if existing funding models were not addressed in some way to allow for open source, cost free access to learning materials rather than having quality resources locked in high cost subscription data bases. These concerns are addressed in the recommendations.

The essential work of the teacher librarian in a school library of the future

The essential work of the teacher librarian was identified in terms of curriculum design centring on resource-based inquiry, instructional leadership, technology innovation, building and leading instructional teams, and knowledge/facilities manager. Each of these is outlined in considerable detail on pages 21-25 of the full report. However, the breadth of the role of the teacher librarian was acknowledged across school contexts, with school library teams requiring different emphases on particular aspects of the role depending on the nature of the library staffing complement and the specific needs of the school, and specific curriculum requirements:

> *We all have common roles but these need to be adapted to the needs of our individual school community* (2C.9).

There was general agreement that the learning goals of a school are the core business of the teacher librarian (rather than information collection and management), as aptly stated by one respondent:

> *Learning has to be the centre of what we do. Our role is to blend the priorities of our schools, while acknowledging student differences in the way they learn and to offer pedagogical guidance on how to go about this in our school communities* (2C.4).

Underpinning the impact of these roles is teacher librarians' acknowledgement that effectively working with people–teachers and support staff, students and parents–is central to one's modus operandi.

Our role is to blend the priorities of our schools ... to offer pedagogical guidance.

Key impacts of a future school library on student learning

The responses to this question (2D) clearly indicated that it is not easy to conceptualise the relationship between a dynamic school library and tangible, measurable learning outcomes. Key impacts that were identified included:

- contributing to student development of reading for comprehension
- moving beyond information acquisition to deep critical thinking
- moving beyond the superficiality of skills development to deep knowledge development, and
- the ability to apply new skills and knowledge across discipline areas and grade levels.

For example, one high school principal who saw the teacher librarian as an expert in critically evaluating information, and one who modelled the capabilities of a lifelong learner, explained:

> *assisting students [and teachers] to gain that same critiquing 'know-how' by embedding such skills across the curriculum and working as an assessment consultant to assist teachers in developing "meaningful and 'doable' tasks that can assess student outcomes* (2D.3).

The potential of the teacher librarian to provide a differentiated curriculum which focuses on personalised learning experiences and instructional interventions for individual students at the point-of-need was also identified as a key impact.

The majority of *impacts* were identified as inputs rather than outputs, again demonstrating difficulty in articulating outcomes-based evidence. A number of these inputs, however, highlighted the unique position of the teacher librarian as a specialist teacher, as well as the school library as a unique multi-functional and yet integrated learning environment within a school. Such inputs included: the provision of self-directed learning, resource accessibility, and utilising technology and Web 2.0 tools; processes such as learning design and curriculum integration; developing skills in questioning, effective information use and ethical information behaviour, mastering inquiry learning, problem solving and independence
as a researcher; as well as processes of engagement and empowerment. Only one response (from a group of teacher librarians) identified the implementation of an evidence-based approach where, *impacts on student learning would be measured by survey and evaluation of the library plan on a regular basis* (2D.5). This again highlights the need to develop a strong evidence base for school libraries, which is addressed in the Recommendations section of the report.

3. What will it take to get there?

Question 3 invited participants to submit their ideas and views on necessary actions at the system level, the school level, and the school library practitioner level to achieve their vision for school libraries in the future. Input was gathered at these three levels of impact and implementation.

School library practitioner-level action

The dominant theme in terms of practitioner-level actions was that of pro-action. There was a strong sense that the locus of actions must be on what is the core work of the professional teacher librarian: instructional design, pedagogical fusion, active engagement in the teaching and learning process that enables students to inquire and learn meaningfully and deeply though information, and charting learning outcomes which

demonstrate the relationship between the provision of school library services and student achievement. While advocacy for school libraries at the local level is an important aspect, this advocacy has to be accompanied by demonstrable actions and evidences which give substance and power to advocacy. Advocacy alone without being centred on core work actions and evidences has limited sustainability. Participants identified a range of local actions, and these were categorised in terms of two dimensions –strategic versus operational actions.

Strategic actions centre on working as a strategic operator articulating a clear learning-centred vision rather than a library-centred vision, building learning networks in the school, and active environmental scanning to identify key research, and trends in technology and education, and being responsive to these. Operational actions revolve around the core business of teaching and learning: inquiry-centred instruction and evidence of learning outcomes, as well as resourcing, personnel, fiscal actions relating to the operation and management of the school library. One scholar made the following comment:

> *I have been doing research and development work with school libraries in the UK for 25 years. In my experience one of the things preventing library development to support learning is the difficulties that many school librarians have in thinking and acting strategically rather than operationally* (3A.3).

The interconnectedness of strategic and operational actions stood out clearly: operational actions without the visioning, strategic thinking, evidence and long-term planning were not seen as particularly effective.

Engaging in conversations

The need to engage the whole school community in conversations about the school library and its contribution to learning was consistently expressed, in particular, communicating effectively with the school executive, and having a supportive principal and staff. This communication focuses on taking a solutions orientation, rather than a complaint or problem approach, which flows into operational thinking and actions. Respondents acknowledged that conversations with the school principal are essential, and developing a leadership in learning partnership with the principal should be part of a teacher librarian's vision.

Building strategic networks, partnerships and relationships is essential

Respondents saw the importance of building strategic networks, partnerships and relationships that focus on the core work of the school–teaching and learning. For example, it involves engaging actively in teaching/learning committees in the school. School committee involvement is seen as central to meaningful involvement and leadership of the teacher librarian in achieving pedagogical fusion between learning, information, technology, people and place. This is seen as vital to building vision, influence, direction, sustained conversations and a committed collaborative culture, and establishing operational actions.

The strategic teacher librarian engages in *Horizon scanning and foresight* (3A.3). They engage in big picture thinking to build deep understanding of learning and literacy in a rich information and technological landscape, and critically and carefully translate this into operational actions that actually affect change in responsive and proactive ways over time, and collect evidence to inform the change and development process.

Evidence-based practice is not just about focusing on documenting learning outcomes–an operational action. It is about documenting engagement with evidence at the strategic level to inform practice. Strategically and operationally working with evidence is at the heart of effective practice.

Strategic thinking is also about teacher librarians taking control of their own professional learning journey–developing professional networks, tapping into professional associations, attending conferences–again, building conversations around professional practice and learning outcomes:

> *Having a workable network allows us to broaden our knowledge. It can be easy to work in isolation within our schools & for knowledge/ideas to become insular … enables us to effectively contribute to our school's needs* (3A.6).

Effective practice informs policy

Being strategic turns effective practice into policy. One needs to make an impact at formal policy level within the school to make significant change to programs and culture. Policy development is seen as a fundamental part of change management. The notion of *strategic interventions* is very important. These need to occur at the operational level to ensure a shift from operational to strategic, and to build a long term cycle of continuous improvement. Operational actions for continuous improvement include planning with teachers, building collaborative cultures, flexible scheduling, and appropriate budget allocations.

School-level action

Question 3B sought to identify strategies / initiatives / support at the school level that need to be in place to ensure that school libraries and the professional role of the teacher librarian continuously help students learn and achieve. An important starting point certainly rests with the strategic and operational thinking and actions of the teacher librarian, but there was a clear perception in the respondents that teacher librarians cannot work alone in ensuring that the school library contributes richly to student outcomes, and that school wide actions are part of this action.

Overall in the responses there was some sense that teacher librarians felt hampered, not being able to enact a professional role due to struggles with system-boundedness, which constrain the enactment of the professional role. Examples include:

- principal's conception of the teacher librarian role
- ICT coordinator and teachers not wanting to collaborate in the development of students' information-to-knowledge competencies
- the teacher librarian used for release from face-to-face (RFF), and thereby posing some limits on the instructional collaborative role of the teacher librarian working together with teachers, rather than for teachers
- lack of support staff
- inadequate budget for resources/technologies
- often not being allowed release time to attend professional development during school hours.

The actions identified for the whole school parallel the actions for individual teacher librarians. These include: big picture, whole school thinking; understanding of the teacher librarian role; collaborative culture; budget; collaborative learning interventions and pedagogical fusion; harnessing technology potential and creating a 24/7 digital library; library technician support; and whole school policy development. These are explored in detail on pages 31 to 35 of the full report.

System-level action

It was clear, at least from respondents' perspectives, that policies and practices in individual schools are shaped by policies and guidelines at the Department level. Eight key suggestions emerged as strategies and initiatives to support capacity building and continuous improvement at the Department level. These included:

- *Valuing and utilisation of professional expertise of the teacher librarian*–this needs to be in accord with training and expertise; and reflective of guidelines set by the professional school library community, and national library and information professional associations.
- *Evaluation of performance*–there was some support for the notion of performance evaluation to *guide those TLs who are not current in their practice*, and to *guide principals who do not value or perceive the need for such standards* (3C.3).
- *Principal training programs*–were identified by respondents as a way for the Department to work more concertedly in ensuring school leaders are *aware of the benefits and potential of the school library to raise the standards and achievements of their students* (3C.11).
- *Quality training for library assistants* –the need for highly trained library technicians (assistants) who can work to maintain library management functions, to ensure the fulfilment of the primary instructional role of the teacher librarian.
- *Teacher education*–and beginning teacher programs need to explicitly embed an understanding of the information process and how inquiry based learning is enabled through the school library.
- *Equitable access to professional learning*–was identified as a concern for regional teacher librarians, and respondents also wanted to see stronger leadership in terms of the provision of professional development as well as permission to attend professional learning and/or network meetings during school hours.
- *Cost-effective seamless digital information provision*–was identified as a form of system-level support for teacher librarians working within constraints and limitations of individual schools including budget, technology and staff allocations.
- *Policy specification*–for the need to make departmental policies be more inclusive and explicit in terms of the contribution the school library can make to the learning goals of a school, for example, *in all NSW literacy and ICT policy statements* (3C.11).

That said, respondents also acknowledged the *School Libraries 21C* blog discussion as a way forward in terms of inviting stakeholders to take part in a broader community conversation about vision and capacity building of school libraries for the future:

> *This is a small beginning for NSW DET to recognize the importance of quality, well-supported school library services and programs in constructivist, inquiry-based, authentic, quality teaching and learning* (3C.11).

Conclusion

There is consensus that school libraries are an important part of school life and are needed in 21st century schools, even though their value is at times not clearly understood, and their role in the learning agenda of a school not fully utilised. The burgeoning growth of digital information; unprecedented levels in the production of global information where quality and authority of information is often not contested; and the emergence of participatory and collaborative web environments all provide an even richer case for the necessity of school libraries as a unique learning space to develop the intellectual, social and personal agency of students to learn and live and be productive citizens in a 21st century world.

Creating sustainable, flexible and dynamic school libraries as an integral part of the information-to-knowledge journey of students will take considerable innovative, critical and reflective thinking by all stakeholders working together to create shared vision, shared commitment, and shared, sustainable action plans.

Recommendations

The following recommendations are posited as essential elements in creating sustainable futures for school libraries, and enabling their continuous development as an integral component of the learning agenda of schools. They are designed to continue the conversations–at all levels and with all stakeholders. Some revolve around professional development, building mutual understandings of the role of school libraries and the professional work of the teacher librarian, and engaging professional expertise in rich ways. Others revolve around re-imagining school libraries for the future in terms of rethinking and reshaping policy directions, and establishing mechanisms for continuous improvement and creating sustainable futures.

R1 Strategic positioning through policy and action

All school leaders, as well as teacher librarians, need to actively engage with the policy documents of the NSW Department of Education and Training (DET), Australian School Library Association, and the Australian Library and Information Association, that specify the nature and dimensions of the professional role of teacher librarians, and have a clear understanding of the responsibilities and expectations, and enable this to happen in schools.

We recommend that perceptions of the erosion of the profession with regard to:

a. respect of the role of the teacher librarian

b. appropriate utilisation of this role

c. diminishing supply of professional expertise, budgets and technology

need to be addressed at all levels–by teacher librarians, schools and system.

Teacher librarians need to shift their operation and positioning as *victims of circumstance* (e.g. inability to take action because of absence of certain features) to a more strategic positioning where they take action, and generate evidence that points to continuous improvement and change of school culture as a result of school library impacts. Note: each of the following recommendations articulate possible school and system responsibilities regarding strategic and operational approaches to addressing this concern.

R2 Developing capacity as evidence-based practitioners

We recommend that the profession as a whole needs to develop the capacity to articulate needs from research based evidence and local evidence collected in the school.

While there is a rich and complex body of literature that documents the strong contribution of quality school libraries to learning outcomes, we saw few examples of such evidence, and relatively weak arguments related to why school libraries are needed, and the evidence of their impact on student learning. As the majority of respondents, teacher librarians do not seem to have presented cogent, sustained, evidence-based arguments for the future of school libraries. Guidelines and professional development for the development of evidence-based practices could be provided by the School Libraries and Information Literacy Unit. Such a program could be implemented for school-based principal and teacher librarian teams.

R3 Sustained evidence based practice program

We recommend that a sustained evidence based practice program take place, with an emphasis on school-wide approaches to charting and identifying significant syllabus outcomes, and the skills and understandings required of digital citizenship, as a result of school library initiatives and interventions.

The weakest aspect in terms of contributions was the overall inability of respondents to state claims of learning outcomes at a concrete level (i.e. evidence at the operational level), and particularly claims that identify syllabus outcomes. There is a need for the development and implementation of a sustained evidence based practice program within NSW DET school libraries.

R4 Local conversations essential in school library vision building

We recommend that mechanisms are put in place to encourage such conversations between those stakeholders within school communities that have not already found ways to achieve this, or where school libraries are not operating in accordance with professional policies.

Responses suggest the need for more local, school based conversations on what school libraries of the future might look like. For example, the NSW DET through the School Libraries and Information Literacy Unit might lead in establishing and facilitating regional forums that are inclusive of input from all stakeholders.

R5 Reconceptualising school libraries as centres of inquiry

The perception of a futuristic school library as *learning commons*, or *learning centre* emerged from the commentary. This centres on a shift in the conceptualisation of the school library as a centre of resource collection and information access, to a centre of inquiry, discovery, creativity, critical engagement and innovative pedagogy. Underpinning the development of the school library as a *learning commons* or centre, is the need for an explicit, holistic research based pedagogical model of enabling the information-to-knowledge journey of the child. This is the foundation of evidence based practice, and an essential dimension of evidence based education. Such a model would emphasise inquiry across and within disciplines, deep knowledge and understanding, and the dimensions of the *Quality Teaching* framework. Consistency between NSW DET policy and ASLA-ALIA policy statements *Guided Inquiry and the Curriculum, Information Literacy, Standards of Professional Excellence for Teacher Librarians*, and *Teacher Librarian Qualifications* should be explored.

We recommend school libraries as centres of inquiry be thoughtfully explored at the policy level within the system.

This could be facilitated by the School Libraries and Information Literacy Unit, leading planning and development, and could include the collection of school based exemplars of successful inquiry learning programs that are regularly featured in a publication such as *Scan* or published on a showcase website. These exemplars can be used as a point of reference for school leaders and teacher librarians to collaboratively negotiate school based policies and practice, including evidence based strategies.

R6 Pedagogy underpins technology

We recommend that pedagogical fusion becomes part of the school's vision for learning through school libraries.

This presumes school information and technology policies ensure that pedagogy underpins the decision making behind a school's information architecture, where networked information services and provision of internet access enhance innovative and flexible use of space, resources or expertise. This will ensure that pedagogical goals lead technology integration and use, and that the multiple agencies within a school are explicitly acknowledged to support the development of students as digital citizens.

R7 Information policy and digital citizenship

Underpinning Recommendation 6 is the recognised need for system-level principal and teacher librarian training about the implications and management of technology integration and information policy issues, particularly the challenges facing schools as a result of digital technologies, such as mobile phones, social networking sites etc, and how these facilitate cyberbullying, plagiarism or other unethical information behaviours. School communities need to understand the breadth of digital citizenship issues and devise school based policies to support and address these issues, and identify how learning interventions through the school library can enable whole school progress with these challenges, and play an active role in their solution.

We recommend that a system-based professional learning program be devised to support principal and teacher librarian teams in developing school based information policies and curriculum initiatives to address these issues.

R8 Identifying achievement of pedagogical fusion

We are still seeing a picture of the fragmented uptake and integration of technologies in schools. The system needs to enable information and technology convergence (as detailed in Recommendations 6 and 7) by seeking exemplars of schools that have successfully managed this convergence with their school library (thus achieving pedagogical fusion), and use these as models/centres of excellence.

We recommend exemplars of pedagogical fusion be included as part of a School Libraries and Information Literacy Unit hosted showcasing website.

R9 Effective technology provisioning for school libraries

Our concerns expressed in Recommendations 6, 7 and 8 also support Recommendation 9.

We recommend that school principals ensure school libraries are not marginalised when implementing technology infrastructure.

The marginalisation of some school libraries in terms of technology decision making and provision in schools is of significant concern considering the convergence of the informational and technological in the real world; this is not reflected, nor the reality in some schools! A seamless roll out of technology needs to be effectively managed in schools, and if this is not happening within a school, the system needs to establish mechanisms to respond to such issues and develop and maintain cycles of continuous improvement.

R10 Re-imagining school libraries program

For those primary schools without BER or other significant funding support, we recommend that school leaders, including teacher librarians instigate a re-imagining process with what they already have: how can they transform a school's library into a flexible, high-tech learning centre? We question what mechanisms exist for implementation at the system level to assist those schools whose library facilities have not been recently upgraded.

We recommend the development of a re-imagining school libraries seed grant program that encourages schools to apply for special seed funding to support the facilitation of a re-imagining process.

In return for this funding, successful school candidates would be required to compile a short report or case notes on the process used and outcomes achieved to be published as part of a showcase website as per Recommendation 8. This will contribute to the development of an evidence based approach at both school based and system levels.

R11 State-wide provision of e-subscriptions

At the system level there needs to be an investigation into a state-wide subscription of quality online learning resources (e.g. online reference and full-text databases). This resourcing comes at a significant cost to individual schools.

We recommend that the provision of a suite of online learning resources be negotiated at the state level between the NSW DET and the NSW State Library to provide all NSW DET teachers and students across NSW with access to such a resource pool, at school and in the home.

R12 Establishing a research program on school libraries and student learning

Notwithstanding the significant research undertaken to date, overall there is a paucity of Australian research on the dynamics and impact of school libraries on student learning. There needs to be a sustained national formal research program examining the relationship between school libraries and student learning, including the documentation of case studies of excellence.

We recommend that the NSW DET take a lead in seeking partners at both state and national levels to attract significant research funding to develop such a program.

Such partners include the Australian Library and Information Association (ALIA), Australian School Library Association (ASLA), Australian Council for Educational Research (ACER), Principals Australia, other professional teaching associations, and universities

R13 Strengthening principal and teacher librarian partnerships

A significant strategic shift needs to occur in many schools regarding principal and teacher librarian partnerships. A strong body of research espouses the importance of the partnership between the principal and the teacher librarian. This requires significant efforts on the part of individuals to make this relationship work to maximise the potential of the school library's contribution to student achievement. Conversations need to be instigated at the local school level, and collaborative partnerships need to be established at district and state levels between principal and teacher librarian professional associations. The system could provide professional development opportunities for principals and teacher librarians to meet regularly in the form of a joint annual conference or leadership forum with the goal of ongoing continuous improvement and development of school libraries in NSW DET schools.

We recommend that support is provided by NSW DET to enhance principal and teacher librarian partnerships for continuous improvement in school libraries.

R14 Student enquiry and engagement with critical literacies central to teacher librarian role

We recommend that teacher librarians recast their primary role and function as supporting student inquiry and engagement with critical literacies.

The system should identify those schools who have developed strong inquiry-based programs in collaboration with the teacher librarian, and present these as part of a showcase website as per Recommendations 5, 8 and 10.

R15 Guiding principles in envisioning school libraries

We recommend the NSW DET conduct an environmental scan of leading school communities who are well on the way to envisioning their school library as a school library of the future.

The School Libraries and Information Literacy Unit could lead this project. These schools could be used as case studies demonstrating strategic and operational processes, and their practice could be used to establish a set of guiding principles to inform a school based envisioning process.

We recommend that a significant professional development program be implemented at the system level to assist teacher librarians in developing the expertise required to effectively function within an increasingly blended learning environment.

Teacher librarians need guidance in bridging the transition from Web 1.0 to Web 2.0 information systems, as well as raising awareness of other new and emerging technologies, and how these enable inquiry learning.

R16 Taskforce and white paper

Taking into account the contents of this report, including consideration of the principles underpinning 21C school library design outlined in Section Q2 and the above set of recommendations:

We strongly recommend that the NSW Department of Education and Training form a taskforce to develop a white paper on a vision for school libraries in NSW government schools including strategic directions for implementing this vision by 2012. ■

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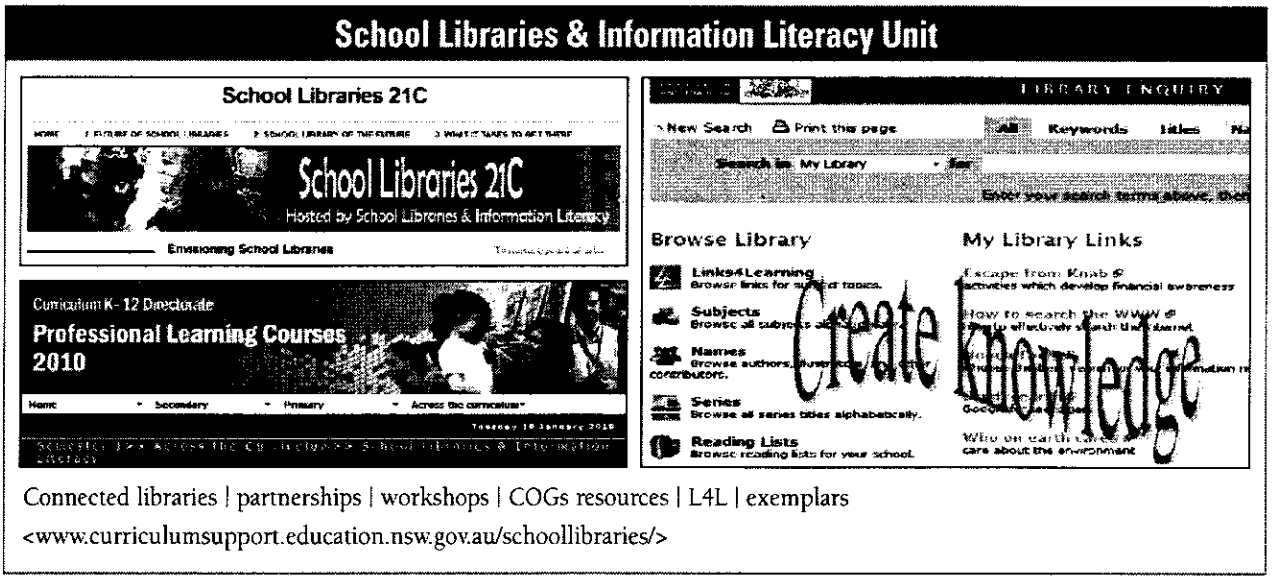

School Libraries Worldwide – Volume 14, Number 2, July 2008, 1-18

Towards a Transformative Pedagogy for School Libraries 2.0

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As more and more educators face the impact of Web 2.0, and as we see emerging what could be called a Learning 2.0 environment, it becomes urgent to extend teaching to meet the literacy and learning needs of the Net Generation. These 'new' learners and their expanding literacy needs have major implications for current models of school library programs which are largely focused on reading promotion and information literacy skills. We join others in recognizing the need to critically question long held tenets of school libraries and to create a new research-based vision that will accord with the current economic and social directions driving educational change. This paper contributes to that process by proposing a framework for the work of school libraries in new times based on research in new literacies, today's learners, and emerging concepts of knowledge.

> Today's students are no longer the people our education system was designed to teach. (Prensky, 2001)

Spurred by explosive developments in information and communication technologies generally and Web 2.0 specifically, the meanings of knowledge (Castells, 2000; Gilbert, 2005); and literacy (Lankshear & Knoebel, 2003; Leu, Kinzer, Coiro, & Cammack, 2004; Lonsdale & McCurry, 2004) are changing profoundly. Today's students view digital technologies very differently from their teachers as they seamlessly integrate them into all aspects of their lives (Lenhart, Madden, & Hitlin, 2005; Media Awareness Network, 2005; Organisation for Economic and Co-operation Development, 2001). Outside of school, many young people comfortably use a wide variety of new literacies associated with new technologies and use Web 2.0 tools to construct and distribute knowledge (Knoebel & Lankshear, 2007; Lenhart, Madden, Macgill & Smith, 2007). These new literacy practices are also defining the new workplace in the knowledge economy (Lonsdale & McCurry, 2004). We agree with Selfe and Howisher (2004), and others, that the literacy education provided in the past by parents and teachers will no longer equip people for success in the altered world in which we live. These transformations of the essential foundations of education--learners, literacy, and knowledge--carry dramatic implications for teaching and learning. Below we identify key concepts emerging from three interrelated literatures: today's learners, new literacies, and postmodern views of knowledge.

New Learners

A growing literature focuses on today's students who were born into this era of burgeoning information and communication technologies. As a group, they are variously termed digital natives, Net Generation, Information Generation, Millennials and Neo Millennials (e.g., Aphek, 2001; Barnes, Marateo & Ferris, 2007; Gee, 2002; Howe & Strauss, 2000; Negroponte, 1995, 2008; Oblinger & Oblinger, 2005; O'Reilly, 2000; Prensky, 2001; Tapscott, 1998). Studies of Internet access and usage by youth in North America, the United Kingdom, and Europe show dramatically escalating trends (Livingstone & Bober, 2005; Media Awareness Network, 2005; Organisation for Economic and Co-operation Development, 2005). Although one level of the digital divide is closing, others are opening. First, a "participation divide" is emerging whereby young people from higher socioeconomic classes are the primary creators of Web content (Hargittai & Walejko, 2008). This same literature points to a seriously widening gap between home usage of the Internet by youth and the paucity of usage opportunities in school settings, particularly opportunities for experiences to engage in the participatory culture of the Internet (Jenkins, Purushotma, Clinton, Weigel, & Robison, 2006; Levin & Arafeh, 2002).

While acknowledging variation within and among countries, the literature on youth and new technologies reveals unique ways this generation learns and distinct traits in their personal identities. They are growing up connected to the world and each other; they use technologies to communicate with known and unknown others and to shape their lives; they are action-oriented problem solvers and see technology as their primary tool; they define their identities by shared interests and experiences; they herald creative thinking, empowerment, and problem solving as key qualities in the new global economies; and they see themselves as competent pioneers in their personal and shared futures. Given the widespread and rapid changes spawned by new technologies and embraced by adolescents, it is especially critical that educators attend to these distinct characteristics of today's youth. As Leu, McVerry, O'Bryne, Zawilinski, Castek, & Hartman (in press) recognize, "adolescents direct change within societies, they are the harbingers of our future. We see this taking place now in the changing social practices of literacy as the Internet enters their lives" (p. 3).

New Literacies

What counted as literacy a generation ago has changed significantly. To function effectively in society now requires more than basic reading and writing with old technologies and print materials. In their workplaces, communities, and personal lives, people must be competent in a variety of print and digital technologies to communicate and learn. Within this expanding notion of literacy, "new literacies" refers to new forms of texts--or post-typographic (digital) forms in which images and multimedia are increasingly dominant--and new ways of using text to shape new ways of thinking such as wikis, weblogs, social networks, mash-ups, zines and scenario planning (Lankshear & Knoebel, 2003). Literacy in online environments such as the Internet involves skills and processes that are both common to print literacy but also skills that are unique such as using search engines, reading websites, selecting appropriate hyperlinks and comparing information across sources (Coiro & Dobler, 2007; Henry, 2006; Leu, et al., 2007; Sutherland-Smith, 2002).

Although today's students are savvy in many aspects of the new literacies of the Internet, research shows they are not as proficient as popularly thought. When presented with an information problem/question, they go first to the Internet, tend to rely exclusively on Google as their search engine, and use natural language as search terms (Rowlands & Nicholas, 2008; Stenton, 2007). This pattern indicates their limited understanding of the Internet as a collection of resources from different providers and lack of knowledge of more effective key word search strategies (Rowlands & Nicholas, 2008). They approach the results list with a "click and grab" strategy by most often selecting the first source on the list with minimal or no review and evaluation of its relevance or quality (Guinee, Eagleton, & Hall, 2003; Henry, 2006). Students spend little time reading the source; instead skimming and scanning are typical reading processes for both youth and college students (Rowlands & Nicholas, 2008). Once within a website, becoming distracted by both internal and external hyperlinks is a greater risk than in print sources of information. Finally, cutting and pasting rather than rewording and recording are dominant processes when students are taking notes from online information sources (Lathrop & Foss, 2000).

New literacies are more than new types of texts and processes imposed on a past world; they are situated in what Castells (2000) calls "the era of informationalism" which is oriented towards technological development, the production and accumulation of knowledge and towards higher levels of complexity in information processing. In this way, new literacies are never fixed or definable but constantly evolving. Finally, new literacies are not limited to technical and intellectual competencies, but include social and ethical responsibilities necessary for living in today's networked world (Kapitzke, 2003). Thus, being able to deeply and critically evaluate information to uncover perspectives both present and absent, as well as techniques used to accomplish these goals is an increasingly central element of the new literacies. And this means more than asking "Is this credible" but rather asking such questions as "What is credible?," "Who decides?" "What does this person have invested in this information?" "How does the author get me to believe him/her?" "How does the information influence my thinking on the subject?" In accordance with New Literacies Studies (New London Group, 1996), the larger purpose of information literacy in this view is transformative, aimed at personal and social action and ultimately viewed as a means to redress social inequities. While current policies for the future of education emphasize critical literacy (e.g., New Media Consortium, 2007), research about young people's Internet literacy reveals an urgent need for instruction in these higher level aspects of new literacies (Asselin & Lam, 2007; Damico & Baildon, 2007; Livingstone & Bober, 2005).

New concepts of knowledge

If education is to prepare students for participation in the era of informationalism and the knowledge-based society, then radical shifts about the postmodern nature of knowledge need to be understood (Castells, 2000; Gilbert, 2005; Lankshear & Knoebel, 2003; Lyotard, 1984). Knowledge in the Industrial Age was viewed as fixed, authoritative, discipline-bound, obtained and owned by individuals, and regarded as "the truth." In contrast, knowledge in a knowledge-based society is constantly changing, contested, interdisciplinary, and collaboratively constructed and re-constructed by "amateurs" for massive audiences. Wikipedia and its many

spinoffs exemplify this new meaning of knowledge. Youth spend large amounts of time on the "new Web" using Web 2.0 applications (Lenhart et al., 2007) which enable very different kinds of engagements and purposes which are more focused on interaction, participation and creation rather than passive reception and retrieval of information. Given the shift of the information environment from finding, locating and evaluating information to one of using information, creating knowledge and sharing ideas (Todd, 2008), it is disturbing that there is little evidence of any of these activities for school learning even though many teachers report they are using the Internet in school assignments (National School Boards Association, 2007). Indeed, research tasks in schools are predominantly framed as fact-gathering activities rather than meaningful inquiry (Asselin & Moayeri, 2008; Asselin & Lam, 2007; Limburg, 1999). In contrast to the more typical use of the Internet in school assignments as a virtual reference library, its potential to be regarded as the postmodern construct that it is remains untapped—as something that decolonizes knowledge and the creation and ownership of it and as a potentially more democratic knowledge community. Participation in a knowledge-based society is determined by extensive experience with and expertise in using new literacies for these purposes and young people will be advantaged or disadvantaged accordingly. Put simply, ensuring competencies in new literacies for learning for all students is a means of addressing the new kind of digital divide (Castek, Leu, Coiro, Gort, Henry, & Lima, 2007; Livingstone & Bober, 2005).

Methodology

Three questions guided the development of a proposed pedagogical framework for school library programs in a Learning 2.0 environment: (1) Who are the new learners of the Net Generation?; (2) What literacies do today's students need to live and work in the world?; (3) How do we teach the new learners? Three stages of data collection and analyses were used to answer these questions. First, extensive reviews of current literature in each of the three areas above were carried out and key concepts identified. This body of research was drawn from national and international contexts and limited to research from 2000-2008 except for several seminal pieces included from pre-2000. Second, videotaped interviews with 14 teenage students, balanced for gender, background and school achievement, in two parts of Canada and in Switzerland were conducted to extend and enrich findings from the literature review. Students spoke in small focus groups and individually about how they use technology in their everyday lives, how they use the Internet for school work, what they need to learn to be better users of technology, and their suggestions to teachers about using the Internet to make school more engaging and relevant. Third, key concepts about the new learners, the literacies they need, and how to teach these literacies that were gained from the review of the literature and the interviews, were field-tested through a series of workshops and presentations to local, national and international colleagues. These sessions included keynote addresses at the International Reading Association Convention (Asselin, 2004; Asselin & Doiron, 2004), the Council of Ministers of Education in Canada Forum (Asselin & Doiron, 2005), and public addresses to the library communities in Aarau and Zurich, Switzerland (Doiron & Asselin, 2007). Workshop sessions were held at the International Association for School Librarianship Conference in Lisbon (Asselin & Doiron, 2006), three cities in Switzerland (Asselin & Doiron, 2007a; Asselin & Doiron, 2007b); several provincial library organizations across Canada (Asselin

& McPherson, 2007; Doiron, 2005, 2006) and at local venues in each of our home provinces. Graduate students in two Masters level courses in two school librarianship programs in Canada (*iBrary*, 2007) also explored the issues raised by these three questions, as did pre-service teachers in two institutions in Canada and one in Zurich (Asselin & Doiron, 2007b). All formal and informal feedback and suggestions were synthesized and incorporated into the overall framework. We recognize the outcomes from our investigation as only a first step rather than a definitive plan from which to generate a new vision for school libraries.

Who are the Learners of the Net Generation?

It is fundamental to begin the development of a new pedagogy for school libraries by first examining the literature on the learners arriving in our schools and current demographic information on today's youth, and reflecting on the realities faced by educators in schools today. Many writers reviewed above have attempted to describe the generational characteristics of people born since the 1980s. As the first generation to have grown up always having the Internet, new media, and access to many learning opportunities, educators are faced with growing evidence that the traditional methods of teaching and learning are out of sync with current students and find many are disengaged with their school work and more interested in what is happening outside of school. We have attempted to explore and analyze what many have said about these "new learners" and have created 10 major characteristics common across the literature on this Net Generation

Interactive participants

The youth of the Information Generation are not passive observers of the world. They are interactive participants who accept change and innovation as part of their daily life. They are goal-oriented and active decision-makers who were brought up with input into their choices and options. Their parents included them in deciding on their clothing, their menu choices, their vacation plans and a host of everyday activities.

Take action approach

This is a generation of problem-solvers who take a "make your point" approach to getting things done. They want to tackle solutions, not spend time analyzing the problem. They are upfront about what needs to be done and they prefer a take-action approach rather than waiting for conditions to be perfect. Rather than ready, aim, fire, they prefer to fire first and see what happens.

Early adopters

The youth of the Net Generation are early and eager adopters of new technologies. They don't wait for someone to show them how it's done–they assume ownership and control. They don't want to know *how* it works but how to make it work for me. They don't use the instruction manual that comes with a new technology; they seem to have developed a set of skills that transfers seamlessly to new technologies.

Personal landscape creators

The computer, hand-held devices and the Internet are tools they use to create and manage their personal landscapes, a type of playground for them–the land of endless

possibilities and opportunities. Because of their access to digital media, these children learn, work, shop and create in ways different from their parents and teachers.

Multi-tasking, multi-modal, multi-resourcing

The Net Generation's natural learning mode is that of multi-tasking (for example, accessing websites, listening to music, responding on MSN), multi-modal (listening, watching, reading at the same time), and multi-resourcing (using a wide variety of traditional/digital resources). They can handle several tasks at the same time and rely on media-rich resources for their learning.

Learn by doing

The youth of the Net Generation take a hands-on, learn by doing approach to learning. They like to tackle problems and develop their own solutions. They can take responsibility for their learning, show initiative and freely share and give their knowledge to others. They possess intellectual openness rather than individual ownership and find it difficult to understand how people can own and control intellectual property. Negroponte (1995) talks about new forms of learning such as "playing with information" and "learning through research."

An economic force

The youth of the Information Generation are seen as an economic force in society. They have more disposable income that any other generation ever had and they have high expectations for achieving and acquiring the things they need to be successful. Their technology savvy abilities are prompting them to move into the technology workplace earlier. As online shoppers, they are avid users of many commercial sites and services.

Connectivity and community

Being connected with their friends, building and maintaining relationships and being part of a community are very important to the Net Generation. They see the Internet as a way to connect to the world and each other. They are online all the time and they use cell phones, chat tools, blogs, social networks and text messaging as ways to stay connected within their peer group and beyond into virtual communities tied together by common interests or needs. They put themselves online to the world with personal Web pages, personal profiles, entrepreneurial endeavours, podcasts, videocasts and Internet publishing of various kinds.

Passionately tolerant

The youth of the Net Generation are passionately tolerant of various lifestyles and life choices. They are growing up in a variety of family structures (single parent, multiple parents, same sex parents, extended families); they have a much stronger global orientation in all of their activities as they connect with friends (and shop) around the world; and they seek greater social inclusion of varied and diverse cultural values. The Net Generation grew up with diversity presented to them in all their television, learning materials, children's literature and their local and global media. Their backyards are the world, not just the local neighbourhood.

A force for social transformation

The Net Generation holds the potential for great social transformation through their engagement and leadership in a wealth of current and global issues (for instance, the

environmental movement). They are a generation who look for new ways to take part socially and politically in society (witness the role YouTube is playing in the current American Presidential campaign). Tapscott (1998) says "these millions of children are combining demographic muscle and digital mastery to become a force for social transformation."

A Further Synthesis of the Ten Characteristics of New Learners

Our further synthesis of these 10 characteristics collapsed them into two major categories (see Table 1).

Table 1
Describing 2.0 Learners

Learning Processes	Constructed Identity
Interactive participants	Economic force
Take action approach	Networked communities
Early adopters	Passionately tolerant
Makers of personal landscapes	Force for social transformation
Learn by doing	
Multi-tasking, multi-modal	

One category captures how new learners go about a task, how they use technology and their learning style. These *ways they learn* (learning processes) form the interface they use to connect and build their world. They learn by doing, making, and pulling disparate pieces together to create new products; they value action and use a take-action approach. New learners approach their learning as the building of a personal landscape, controlled and mediated through the tools offered by new technologies. They expect information and ideas to be shared openly and freely and created in multi-modal ways. They navigate and browse searching for ideas and information and they can move among various texts in a type of digital grazing.

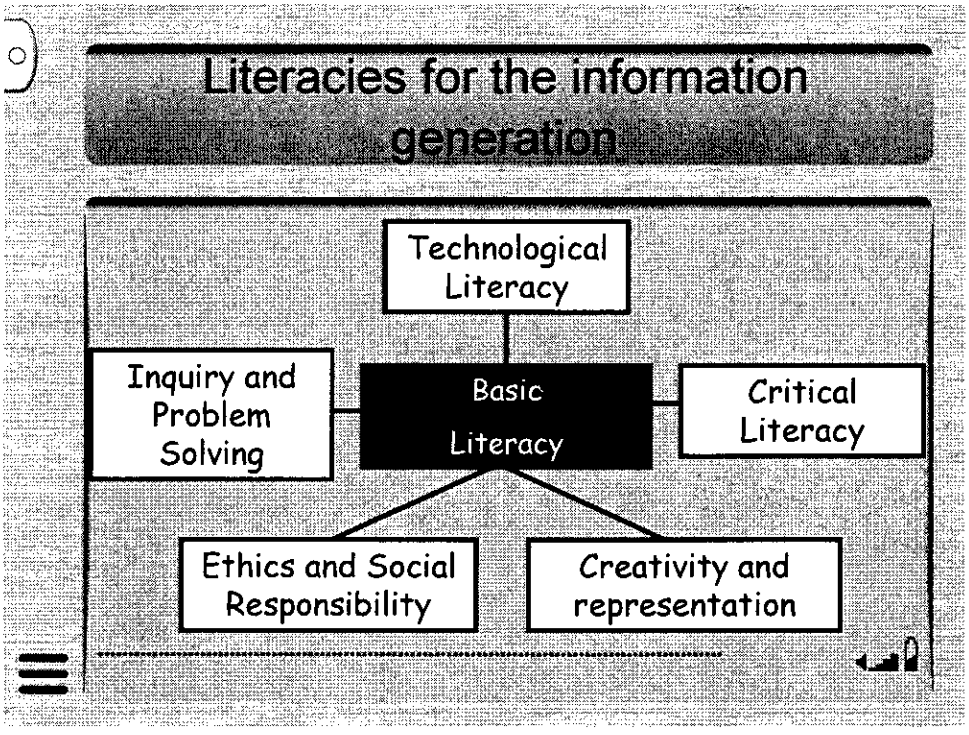
The second category reflects some of the features of their personalities, their values and how they see themselves–*their identity*. These new learners value choice and they understand and exercise their economic power. They value relationships and their independence, yet see things as connected and interdependent; they want to do something significant, make a difference and be part of a connected community; they value diversity, are tolerant and see themselves as active creators of the world.

What are the Literacies these New Learners Need to Live and Work in the World?

This part of the framework identifies the literacies that young people need to successfully participate in their future social, cultural and economic worlds (see Figure 1). Obviously all learning will emerge through the basic literacy skills associated with traditional reading, writing, listening, speaking, viewing and representing, but added to that are five comprehensive areas which reflect the multi-modal, multiple literacies that will enable full literacy development for today's learners. Following Figure 1, we share some of the key outcomes associated with each constellation of skills. While not exhaustive, the literacies we

identify give some perspective on what learners need to learn to participate in the global, networked society.

Figure 1: *Literacies for the Information Generation*



Technological Literacy

Technological literacy includes: (1) A complex/comprehensive set of effective and efficient search skills, computer software/hardware and a full range of Web 2.0 social software applications; (2) Navigating, browsing and "reading the landscape" of Internet sites; (3) Word processing skills fully integrated into the writing process; (4) Communication skills using e-mail, text messaging, blogs, and on-line social networks; and (5) Integrating other media formats such as slide shows, mash-ups, wikis, video clips, sound bites and emerging digital formats into their writing and publishing activities.

Inquiry and Problem Solving

An inquiry and problem solving approach to literacy means: (1) Knowing when I have an information need, question or a problem that requires new information; (2) Using essential and meaningful Questions to guide inquiries and not perpetuating a Trivial Pursuit to guide the learning process; (3) Finding, accessing and using information to solve problems, make decisions and create new knowledge; (4) Skills with how information is organized and structured; and (5) Synthesizing new knowledge and creating and sharing that knowledge.

Critical Literacy

Students need to develop critical literacy by learning how to: (1) Focus on how and in whose interest knowledge is produced and presented; (2) Determine authenticity and reliability of sources; (3) Learn how media manipulates and is manipulated; (4) Assess which tools are

best for each learning need; (5) Recognize their global and social responsibilities; and (6) Take their place as active citizens in a democratic society.

Ethics and Social Responsibility

Another major skill area is ethical and responsible use of knowledge. Students need to: (1) Learn to be conscientious users and producers of knowledge; (2) Develop values associated with the fair and honest use of information and distributed and socially constructed knowledge; (3) Develop respect for open source and open knowledge principles which allow for equitable distribution and access to knowledge for all; (4) Represent the knowledge of others accurately and appropriately; and (5) Respect confidentiality, intellectual property and illegal uses of knowledge and information.

Creativity and Representation

Educators need to provide opportunities for students to use their multiple literacy skills creatively and to represent their learning. This includes: (1) Creative ways of preparing and sharing newly developed knowledge; (2) Learners combine presentation methods for more holistic and multimedia approaches; (3) Understanding that the medium becomes the message; (4) Balance: speaking, viewing, performing, artistic, representing, listening, as well as reading and writing modes; and (5) Use slide shows, multimedia tools, website design, Web 2.0 tools, CD and DVD productions, and new digital technologies as they emerge in the future.

In considering the literacies that today's students need, we have drawn particularly from Leu et al. (2004) for their theory of new literacies of the Internet and other digital learning technologies; Damico, Baildon and Campano (2005) for their interdisciplinary framework of technology, literacy and disciplinary knowledge; and from the National Council of Teachers of English (2008) for their statement on literacy in the 21st century.

Leu et al. (2004) argue that for schools to contribute to the development of lifelong learners, a learning society, and a knowledge-based economy, "it becomes essential to prepare students for the literacies [of the Internet and information and communication technologies] because they are central to the use of information and acquisition of knowledge" (p. 1571). These researchers explain that competency in the new literacies of the Internet is critical to being able to participate in global, networked societies because "new literacies allow us to use the Internet and other (digital technologies) to identify important questions, locate information, critically evaluate the usefulness of that information, synthesize information to answer those questions, and then communicate the answers to others" (p. 1572).

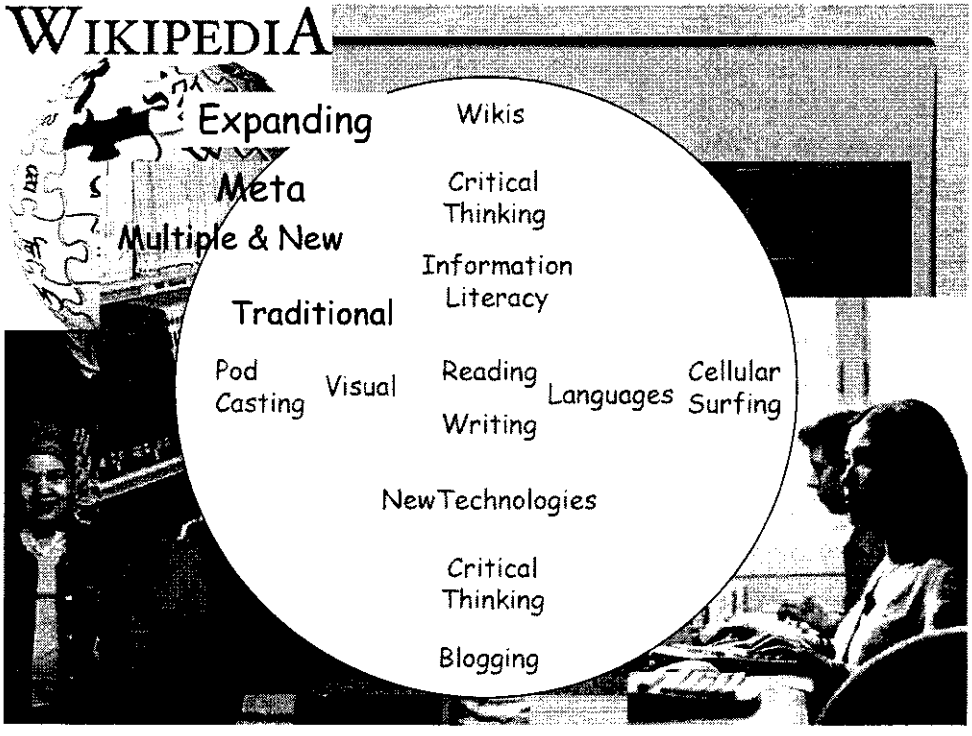
In contrast to well known information literacy pedagogical tools (Eisenberg & Berkowitz, 1990; Shrock, 2008), the interdisciplinary framework developed by Damico, Baildon, and Campano (2005) integrates literacy, disciplinary knowledge and technology. The model consists of three dimensions: operational (navigating websites, judging usefulness etc.), academic (using discipline-specific ways of thinking), and critical (understanding techniques used to influence readers and how one's own perspectives shape interpretation). It is noteworthy that Damico and Baildon (2007) found little evidence of the critical dimension in grade 8 students.

Recognizing the dramatic influence of new technologies on literacy, the National Council of Teachers of English (2008) recently published a position statement capturing the changing aspects of literacy. We situate our expanding view of literacy within this vision.

> Literacy in a technology-dependent world involves not only decoding and comprehension but developing proficiency with the tools of technology, building relationships with others to pose and solve problems collaboratively and cross-culturally, designing and sharing information for global communities to meet a variety of purposes; managing, analyzing and synthesizing multiple streams of simultaneous information; creating, critiquing, analyzing, and evaluating multi-media texts; and attending to the ethical responsibilities required by these complex environments (n.p.).

Although information literacy figures prominently in descriptions of 21st century education, other "new" literacies are integral to new school library programs as well, thus creating a "literacy of fusion" where school interests are blended with the students' interests and out-of-school literacies (Millard, 2006). As shown in Figure 2, our model situates these new literacies within an ecological view of literacy expanding from one literacy to include multiple, new literacies and as yet undetermined literacies.

Figure 2 *Expanding View of Literacy*



How Do We Teach the New Learners??

Our conclusions present a blueprint for educational change that is rooted in a set of transformative pedagogical principles that reflect a revisioned school library program (outlined in Table 2).

Table 2
Principles for Teaching for the Knowledge-based Society

How to Teach	What to Teach
Collaborative, connected learning	Lifelong learning
Control within parameters	Ethical issues
User-centered technology	Social responsibility
Multiple, diverse resources	Critical consumers and producers of knowledge
Contexts of social responsibility and globalization	Develop diverse and flexible competencies

These principles can be categorized as (1) "what we teach" (the areas of knowledge, skill and attitude we must teach for our children and youth to become successful learners); and (2) "how we teach" (the approaches that capitalize on the learning styles and learning values of new learners). While several of the principles may seem similar to traditional pedagogies developed for school library programs, they can no longer be seen as the "added-value" of having an effective school library, but as pervasive and ubiquitous to how we conceptualize and operate an effective "new" school library. We must use these principles to help us move away from the limiting metaphors of the past where we saw the school library as the "hub" or "heart" of a school; it is better thought of as the "brain" and the "nerve centre" of the school where learners gather in a "learning commons" built around inquiry, creativity and interconnected/interdependent communities. We must recognize and embrace notions such as open access to journals and open knowledge as we develop the research process with students (Kopak, 2008) and realize that learners will bypass us completely unless we become knowledgeable about new resources and new ways of building and disseminating knowledge. Even professional development and learning for teacher librarians needs to embrace new ways of building and sharing knowledge such as movies (Moayeri, 2008) and immersive environments in Second Life (Kemp & Haycock, 2008). At the very least, we propose that these principles and the framework be used as a means of re-assessing and revising the school library and hopefully to spark an international conversation on new school libraries (Asselin & Doiron, 2008).

Focus on teaching learners 'how to learn'

More than ever, we must be focusing on developing in learners strong knowledge-building skills and equip them with diverse and flexible competencies which they will need to live and learn throughout their lives. Naslund & Giustini (2008) provide excellent examples of how to use blogging, social networking and other Web 2.0 tools to engage learners in learning how to learn in digital contexts.

Build collaborative, connected learning situations

We must create learning opportunities where learners work locally and globally with other learners to build new knowledge and access current and past knowledge. For example, we work together and build a class wiki on Animals of North America where we all contribute, link to authorities on the topic, interview virtually animal experts and pull together the existing

knowledge on our topic using available online multi-media products while creating our own. At the post-secondary level, Kemp and Haycock (2008) provide an excellent example of how these immersive environments can involve high-end technologies to create multi-user virtual worlds that can both replicate and far extend physical classrooms.

Capitalize on new learners' social conscience and global perspective

Herein lies a great potential for engaging learners in making a difference in the world. We only have to look at the impact YouTube and other digital tools are having on issues such as the current American Presidential race to learn that today's youth are using new technologies to make a statement, lobby for change and wake people up to what is happening around them. We need to move away from the static social studies project where each student picked a country and "researched" it and give our learners meaningful tasks built around their global consciousness.

Assign learners more control in their learning within a clear set of parameters

As educators, we find this particularly difficult. We tend to want learning to look the same yielding a common product at the end (a written essay on our favourite political leader for example). We would be better to set clear parameters for a task and let learners choose the ways and means to create personally meaningful products that will still include what we expected for the assignment. For example that essay could be prepared digitally with links to political leaders' policy statements, personal websites and video clips of recent speeches. Friese (2008) urges us to expand our programs to make room for the inclusion of popular culture materials in school library projects offering students more choice and input into the learning context.

Use multiple and varied resources in teaching and learning contexts

If new learners are multi-modal in their learning styles, then they will gravitate to the resources that are first of all, most easily accessible, and that have the richest multimedia formats. Viewing images and reading texts are balanced as the key literacy processes used to study information and create new and varied texts. In school libraries, we support learning through a range of new types of texts and modes of learning (Sanford, 2008). Doiron & Asselin (2005) provide examples of using a wide range of resources to build literacy and develop inquiry.

Teach learners the ethical issues associated with information use and knowledge building

Critical literacy should be the pervasive theme which runs through all our work in the school library. We must use the medium itself to teach learners to critique that very medium – to use the Internet as the postmodern construct that it can be. Good examples are found in McPherson (2008) with activities (a) investigating junk mail; (b) reading media photographs; and (c) deconstructing YouTube.

Teach learners to respect the work of others and to act responsibly as information literate citizens.

The Internet and the Web 2.0 environment seem like a free range where everything is there for the taking. Learners must come to understand at an early age that they have responsibilities as they take from and contribute to the expanding Internet. What are intellectual property rights? What does open source mean? What should I be telling about myself? An

information literate, global citizen must live and work in this world with respect and responsibility.

Conclusions and Educational Significance

Teaching and curriculum have always been socialization processes and therefore political activities. The difference now is that globalization and what Castells (2000) calls the "rise of the networked society", propelled by accelerating developments in technology, have pushed the politics of education to the fore (Kalantzis, Varnava-Skoura, & Cope, 2002). This moves us from a notion of covering the curriculum to the challenges of developing a transformative approach where students *un*cover the curriculum. Some educators carry on, ill-informed about new learners, new literacies, and new concepts of knowledge. They limit their vision of a school library and ignore the leadership role it can play in a transformative pedagogy (Leander, 2007). Others unknowingly layer the new onto deeply embedded educational structures and practices thus appearing to be innovative while perpetuating old ways of learning and teaching. Equipping schools with new technologies does not mean that the potential and implications of Learning 2.0 are realized. Neither does assigning projects in which Internet use is limited to that of a virtual reference library. While today's youth and society race ahead, learning in school (and unfortunately too often learning in the school library) is becoming less and less what James Gee (2002) calls *efficacious*: what a child does now as a learner must be connected in meaningful and motivated ways with mature (insider) versions of related practices. If school libraries fail to respond to the evidence that learners and learning have dramatically changed, we run the risk of being completely ignored by our children and youth, written-off as a throw back to previous times. We know the new literacies are active in students' out-of-school lives, and we know the critical place of new literacies in the workplace. It is time to situate the new literacies of the real world in schools and make school libraries the bridge between in-school and out-of-school literacies.

It is enormously encouraging and exciting that the broader library community is leading the way in responding to the changes propelled by Web 2.0 and expressing the road to change with innovative media (Classroom 2.0, iBrary, School Library Learning 2.0, and Library 2.0,). In this special issue of *School Libraries Worldwide*, *A Librarian's 2.0 Manifesto* (Cohen, 2007) and *The School Library is a Mash up Beta* (Doyle & Trousdell, 2008) identify actions necessary for libraries to advance these activities – studying today's learners in order to develop meaningful user-centered services and programs; engaging in a collaborative change process as a profession; embracing the need for immediate actions; taking risks; and accepting that learning will happen as you go. Although these behaviours support change in all types of libraries, a conceptual framework provides the map for change and the means of monitoring new directions for school libraries. Implicit within this framework are questions and issues about knowledge property, information ethics, and learning ecologies which are particularly pressing for school libraries. Our proposed framework is intended to begin to enable a more thoughtful and effectual response to new learners, new literacies, and new concepts of knowledge so that school libraries become an integral part of New Times (Luke & Elkins, 1998).

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Changing School Culture
The Role of the 21st Century Teacher-Librarian

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Abstract

The integrated school library program model advocated by teacher-librarians and described in government policy and library association position papers is an innovation that has proved to be difficult to implement in North American schools. The model proposes that the primary role of the teacher-librarian is teaching in partnership with classroom teachers. However, because elements of this model challenge the traditional culture of the school, the teacher-librarian needs to work as a change agent. Changing the organizational culture of the school constitutes the key role of the 21st century teacher-librarian and requires a deep knowledge of the particular culture of the school and the complexities of the change process.

Genesis of this Paper

This paper is an abbreviated version of an article published in *Library Trends* (Oberg, 2009), titled "Libraries in schools: Essential contexts for studying organizational change and culture." That paper was written for a general library audience. In this version of the paper, I am writing more specifically with teacher-librarians in mind. I begin with a discussion of the unique nature of school library, the culture of the organization of which it is a part, and the integrated school library program as an innovation that has yet to be implemented in many schools. Then I present an overview of the change process to set the context for examining the roles of three key players in the implementation of the integrated school library program: the principal, the teacher, and the teacher-librarian. To conclude, I suggest implications for school library practitioners and educators and give some final thoughts about the work of changing organizational culture as a role for the 21st century teacher-librarian.

In this paper, I use the Canadian terms, "teacher-librarian" and "integrated school library program." The term "teacher-librarian" recognizes two important aspects of the position, dual qualifications in education and librarianship and the primacy of an instructional role. The term "integrated school library program" indicates that the program, when fully implemented, is a collaborative program, integrated with the school's curriculum, and encompassing "literacy/learning achievement, research/inquiry skills, reader interest/motivation, student/teacher use of technology, and building a positive school culture/community" (Prince Edward Island School Libraries, 2009).

School Libraries as Special Libraries

School libraries are, in my view, "special libraries." School libraries and special libraries both serve the interests of the organization of which they are a part, and they both serve a defined clientele.

School librarians, like special librarians, often are the sole librarians in their organization and they typically report to a supervisor who is not a librarian. The organizations within which teacher-librarians or special librarians serve often hold high expectations for librarians to contribute to the success of the "enterprise," whether that might be the health of a patient presenting unusual symptoms, the profitability of a new corporate initiative, or the success of students on external assessments. For example, it is not unusual for teacher-librarians to be expected to work with every teacher in a school and with every class of students, and it is not unusual for the teacher-librarian to be expected to show how he or she has contributed to the successes of those teachers and students. The "enterprise" of the school is curriculum-driven teaching and learning which means that the "enterprise" of the school library is to contribute to the curriculum-related needs of the teachers and students in that school. The goal of the school library is to positively contribute to teaching and learning in the school; it also has the potential to contribute to the social goals of the school such as student engagement, inclusion of diverse learners, and relationships with the community. Because the school library serves the interests of the school of which it is a part, the teacher-librarian needs to understand the culture of the school in order to be able to work within that culture and/or to work to change that culture.

The Culture of the School

The concept of *culture* refers to a group's shared beliefs, customs, and behaviour. The culture of the school is created through the interplay of the beliefs and attitudes of those in the school and those in its environment. In the mid 1980s, several Canadian school library researchers (see, for example, Brown, 1988; Monkhouse, 1984) began to use the concepts of school culture and change as ways to understand the challenge of implementing the integrated school library program, often referred to at that time as "cooperative planning and teaching." In one of my first articles based on these concepts, I wrote that "Teacher-librarians are involved in the process of change whether they are implementing a program for the first time, making changes to an established program, or participating in some aspects of ongoing school improvement" (Oberg, 1990, p. 9). In that article, I described the school as an organization, as a workplace, shapes and is shaped by the norms of teaching: *conservativism* ("I like schools, and I don't see the need to change them"), *individualism* ("I learned to teach on my own, and now I teach on my own') and *presentism* ("My financial rewards are tied to education and experience, not to effort and outcomes"). These traditional norms of teaching are very pervasive across North American schools and appear to have remained stable over many decades. This makes change in schools and school systems very difficult.

Yet, as I pointed out in the 1990 article, change does occur. In some schools, teachers have moved away from the traditional norms of privacy and self-reliance toward the norms of collegiality and experimentation (Little, 1982) that support an instructional innovation such as the integrated school library program. In some schools, integrated school library programs have been implemented successfully and their successes seem to share some common elements: the presence of a collaborative culture, the collaborative leadership style of the principal and high expectations for the students and staff (Howard, 2008).

The School Library Program as an Innovation

The integrated school library program is best thought of not as a unitary innovation, but as a bundle of innovations. This becomes clearer when the elements of the integrated school library program

are compared with those of traditional classroom culture (Brown, 1988). The integrated school library program involves cooperative planning, team teaching, precisely defined goals and objectives, individualized instruction, variety in resources, maximum freedom for the learner, teacher as facilitator of independent learning, and different locations for learning. In contrast, the traditional classroom culture is characterized by isolated planning, teacher autonomy, vague goals, group instruction, reliance on textbooks, teacher control, teacher as central to the learning process, and self-contained classrooms. Any educational innovation, a new program or policy, is likely to involve changes in three dimensions—materials such as new resources or technologies; teaching approaches such as new instructional strategies, and beliefs such as the assumptions and theories underlying the innovation. These dimensions are dynamically interrelated: a change in one is likely to have an impact on the others. The integrated school library program as an innovation is multidimensional and, for most educators, constitutes a change in all three dimensions, all in a dynamic relationship with each other.

The Change Process

The research related to planned change in education is extensive, going back to the 1970s (see, for example, Fullan, 1982, 1991, 1993, 1999). Discussions of the change process has been and continues to be a theme within the professional and research literature of the school library field (see, for a recent example, Hughes-Hassell and Harada's 2007 book on school reform and the role of the school library professional). Since the 1970s, some important lessons have been learned about planned change—change is a process, it is personal, and it takes time.

Change is a process, not an event; it is a journey into uncharted territory (Fullan, 1993). Each of the general stages of planned change—adoption of the innovation, implementation of the innovation, and institutionalization or continuance of the innovation—is characterized by uncertainty and risk-taking. The success or failure of each stage of the change process is influenced by many different factors: Fullan (1982) identified over 25 general factors influencing the process of planned change. One aspect of the general factor, "Existence and quality of innovations," is the clarity of the innovation. That is, relatively simple well-defined innovations, such as using a new technology in teaching, generally are easier to implement than more complex, less well-defined innovations such as the integrated school library program.

Change is personal and affects each individual in a different way. The Concerns-Based Adoption model (Hord, Rutherford, Hulling & Hall, 2006) helps to explain how individual teachers respond to the introduction of an innovation that they are expected to implement. At first, teachers are likely to have self-concerns--concerns about how it will affect them personally. Once teachers start to try the innovation, they are likely to have task concerns—concerns about how to use the innovation and use their time efficiently. Once management concerns have been addressed, teachers begin to express concerns about how the innovation is affecting their students, how they can improve its effectiveness, and eventually how they can work with others to improve and implement the innovation. Because the integrated school library program is a bundle of innovations, the teacher-librarian is likely to be working with a number of teachers who vary in their knowledge of and experience with the different aspects of the program. For example, some teachers might be skilled at and have few concerns about team teaching while having many concerns about using a variety of resources in teaching. The Concerns-Based Adoption model offers a framework for tracking teachers' implementation efforts and for planning support for teachers. The teacher-librarian also needs to keep in mind another way in which change affects individuals: the rewards and costs of

change are not the same for everyone, an idea that I explore later in this article in considering why teachers may or may not choose to work collaboratively with the teacher-librarian.
Change takes time and occurs over different time frames, for individuals and organizations. Relatively simple instructional innovations often take three to five years to implement fully (to the stage of institutionalization or continuance). Major school reforms that involve changing school culture may take up to ten years of (Fullan, 1991). Developing a collaborative work culture in a school and developing an integrated school library program require years of "doing the right things consistently and persistently" (p. 210). Because making major improvements in schools involves working and learning together with clear and attainable goals, the loss of a few key individuals (the improvement "champions") can derail or doom to failure a promising initiative. It takes years for teacher-librarians to develop a deep understanding of and commitment to the integrated school library program; they too have gone through stages of concern as they incorporated new practices into their work (e.g., using a Guided Inquiry model of instruction, teaching searching strategies for online databases, adapting programs to meet the needs of new immigrants, and so on). It should not surprise us that it takes other educators time to develop their understanding of and commitment to the integrated school library program.

The school library can and must be a venue for change because its core mandate is improving teaching and learning within the school, for all members of the school community, for teachers and administrators as well as for students. The integrated school library program is a vehicle for change, but it can be affected by changes initiated elsewhere. Sometimes, even school reforms that would appear to be supportive of the integrated school library program can be enacted in ways that are disruptive to the school library program (see, for example, Meyers, 2008). The teacher-librarian can also be involved in bringing about other changes in the school such as addressing diversity or involving families in literacy development (see Hughes-Hassell & Harada, 2007), and each of these changes can be brought about more successfully if the teacher-librarian is knowledgeable about the change process and willing to engage in working with others to bring about positive changes.

Key Partners in School Library Implementation

The development of successful school library programs is a complex process influenced by many factors. For example, researchers in Ontario, Canada identified 13 factors important to the development of exemplary school libraries: school board-level policies; school board-level supports; funding models; staffing models; administrative support; demographics; principal knowledge; teacher knowledge; teacher-librarian experience; teacher-librarian skills; physical features of the library; history of the library; and community and parent involvement (Klinger, Lee, Stephenson, & Luu, 2009). At the school level, these factors are evident in the relationships between, teachers, principals, and teacher-librarians. The collaboration and mutual support of these three are critical for the success of the school library program.

The Role of the Principal

The role of the principal in relation to school libraries has been extensively discussed in the professional and research literature of the field (see Oberg, 1995). Generally, principals are more likely than classroom teachers to be supportive of the role of the teacher-librarian, to value the role of the teacher-librarian related to in-service within the school, to see the need for the specialized knowledge of the teacher-librarian. However, many principals are hampered in their support for school libraries by lack of knowledge about the management and function of school libraries

(Church, 2007; Wilson, Blake & Lyders, 1993), and few recognize the instructional role of the school librarian (Kolencik, 2001).

My own research, conducted over 20 years, has focussed on the concept of principal support. Three studies in particular have enriched my understanding of this concept: a case study of a district with exemplary school library programs which examined the roles of principals, teacher-librarians, district leaders (LaRocque & Oberg, 1990); a case study of the experiences of novice teacher-librarians in schools where the program was new to them, to teachers, and to principals (Oberg & LaRocque, 1992); and an international survey on the role of principals in supporting school library programs in Australia, Canada, Finland, France, Japan, Scotland, and South Korea (Henri, Hay & Oberg, 2002). The latter study used the conceptual framework developed through the first two studies to examine the concept of principal support from the perspective of both principals and teacher-librarians.

This research demonstrated that the principal supports the school library program and the teacher-librarian in four ways:

- As a supervisor working directly with teachers
- As a model demonstrating personal commitment
- As a manager enabling the program
- As a mentor for the teacher-librarian providing visibility / importance

When asked how the teacher-librarian contributes to teaching and learning in their schools, principals in Alberta stated that the teacher-librarian does this through in-servicing staff, through cooperative planning and teaching, and through collection development (Hay, Henri & Oberg, 1998).

Teacher-librarians need the support of the principal but they also need to support the principal by working to advance school goals, to promote with others the principal's views of school goals, and to connect library program goals with school goals. Teacher-librarians need to be effective communicators, willing to enhance the principal's knowledge of the program and the teacher-librarian role, explain clearly the goals of the school library program, and to explain clearly their own needs for professional development.

The Role of the Teacher

Research on the role of the teacher in relation to school libraries has shown that teachers' use of libraries is influenced by their experiences in high school and in university, their perception of their own library knowledge, the encouragement of their principals, and the nature of curriculum requirements. My research with teachers in Alberta (Oberg, 1993) indicated that teachers who received library-related experience and instruction in their teacher education were more likely to share books with their students, to provide library instruction to their students, and to collaborate with library staff. It appeared that experiences in teacher education compensated for lack of library experiences prior to entering university if those experiences included receiving instruction related to how to teach information skills and strategies. Unfortunately, library-related instruction is not a core element of many teacher education programs.

The encouragement of principals and the nature of curriculum requirements are supporting factors for teachers using libraries in their teaching, but these factors are not sufficient in many cases to

influence teachers to collaborate with the teacher-librarian. The culture of the school, as played out in classroom teaching, is often a more potent factor. In schools where the autonomy of teachers is highly valued, this autonomy may be used to reject innovations such as the integrated school library program and to resist collaboration with the teacher-librarian, even when resource-based learning and collaboration is supported by a governmental school reform policy (Kelsey, 2004).

The benefits of collaboration have been well-established in research and practice. However, there are very real costs to involvement in collaboration. These costs may constitute subtle but crucial barriers to involvement for teachers (Oberg, 1990). The cost of participation in collaboration to teachers may be understood in terms of four elements--time, effort, lifestyle, and self-esteem. Learning how to collaborate takes considerable time and effort, especially in the initial stages. For many teachers, collaboration will demand alterations in their basic norms of teaching, and most people look at changes in their current way of operating with some degree of trepidation. This lifestyle cost is closely related to self-esteem cost. Teachers may resist opening their teaching to another who may not think highly of their approach. The teacher also may feel that, in collaborative activities, the teacher-librarian will be cast as the expert in the situation and the teacher will be cast in an inferior role.

Participation costs for teachers are affected by the culture of the school. Where the cultural values of the school emphasize autonomy, it will be more difficult for both teachers and teacher-librarians to change their practices of teaching and to learn the new skills needed for collaboration. For most teachers, the benefits of collaboration—in theory--are not in question. It is the perceived cost that is critical in determining whether or not teachers choose to enter into collaboration with the teacher-librarian. On the other hand, the cost of not collaborating can be high, as in the case when the principal expects teachers to engage in collaboration and monitors closely such engagement (see, for example, Oberg, 1999).

The Role of the Teacher-Librarian

The role of the teacher-librarian is often defined in terms of four roles: teacher; instructional partner; information specialist; and program administrator. With the exception of the latter role, the extent to which teacher-librarians can enact their roles is largely dependent on the culture of the school which often is most evident in the perceptions of principals and teachers in relation to the role of the teacher-librarians.

Teachers who believe that their students' learning success is largely dependent on the work done by teachers in the classroom are less likely to welcome collaboration with others, including the teacher-librarian, than teachers who believe that their students' learning success is dependent on the work of the whole school. Teaching and learning are the "core business" of the school so it is not surprising to learn that one of the two features that distinguished exemplary school libraries in the 2009 Ontario study (Klinger et al.) was that " teacher-librarians maximized teaching time" (p. 18). The other feature was the active change agent role of the teacher-librarians who "continually strove to enhance library programs and to modify existing contexts" (p. 18).

The Canadian school library program model emphasizes the role of the teacher-librarian as teacher and as instructional partner. However, there is considerable research that suggests that teacher-librarians have not always been quick to take on those areas of responsibility. One challenge for all teacher-librarians is to recognize that their teaching experience is both a help and a hindrance to them. Teacher-librarians bring knowledge of pedagogy and curriculum that is invaluable to them

as teachers and instructional partners, but they also bring the norms of teaching. Where the norms of their teaching experience have emphasized privacy and self-reliance, it is particularly difficult for teacher-librarians to initiate planning and teaching with others (Oberg & LaRocque, 1992). Other researchers have also observed this phenomenon: Kelsey (2004) found that, even when the work of the teacher-librarian was legitimized by the state curriculum implementation policy, teacher-librarians felt that they had to wait for opportune moments to offer services to or work with teachers, rather than being the initiators of instructional partnering activities with teachers.

Implications

The key concepts of organizational culture and change have important implications for teacher-librarians and for school library educators.

For teacher-librarians: The integrated school library program is a complex educational innovation with many dimensions. Teacher-librarians who are knowledgeable about school culture and the change process will be more able to set reasonable and attainable goals for themselves and for the school library program, and they will be patient and understanding of the evolution of the school library program. Teacher-librarians who are knowledgeable about the roles and perceptions of principals and teachers will take responsibility for initiating collaboration with teachers and seeking principal support for such initiatives. Through reflection, observation, and conversation, teacher-librarians need to gain an understanding of the costs, real and perceived, involved in collaboration. This will help teacher-librarians to address those costs and to set realistic goals for collaborative work with teachers and principals.

For school library educators: The likelihood that teacher-librarians will actively engage in collaboration is increased when teacher-librarians are well-qualified and well-prepared for their positions. School library education, whether through library schools or colleges of education, should prepare information specialists who are also prepared to act as school leaders and as change agents and catalysts for school improvement. The educational research literature emphasizes the importance of school culture as a factor in instructional innovations. The concepts of culture and change need to be addressed thoroughly in school library education (Mardis, 2007). Because teacher-librarians often need to help teachers and administrators understand the integrated school library program, school library education programs should prepare their graduates to positively present their key instructional role.

Final Thoughts

Two underlying ideas need to be borne in mind as we wrestle with the concepts of culture and change in relation to the integrated school library program: moral purpose (Fullan, 1999) and meaning (Oberg, 1992). The moral purpose of the integrated school library program is making a difference in the lives of young people. However, moral purpose is not so easy to maintain in complex times. Fullan reminds us that change usually benefits some more than others and that the change literature only rarely has addressed questions of power and equity. Can the integrated school library program contribute to making a difference to all of the young people in the school, or only to the college-bound or the native speakers of English?

Implementing the integrated school library program involves changing the meaning of the school library in the minds of its users—teachers and students—but also in the minds of the teacher-librarian and other school leaders. The integrated school library program is about improving

teaching and learning for all members of the school's community—the facility, the collection, the technology, and the staff are means to that end. The challenge for the teacher-librarian is to be an agent and catalyst for change within the whole school as well as within the school library.

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The Potential of the School Library in the 21st Century Exemplary School Libraries Provide a Model for What Can Happen

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Introduction

Support for school libraries continues to decline in Canada, as reported by Statistics Canada (Coish 2005), resulting in lowers levels of staffing and fewer print materials. At the same time, there is a global trend that focuses on educational accountability and school reform, especially in relationship to literacy outcomes (American Association of School Librarians, 2009; Canadian School Library Association, 2003; Ontario School Library Association, 2010; Organization for Economic Co-operation and Development, 2004). International research has linked the positive impact of school libraries and school librarians to higher student achievement and students' performance on standardized tests (Baughman, 2000; Baumbach, 2003; Lance, Rodney, & Hamilton-Pennell, 2000a, 2000b, 2002; OECD, PISA, 2001). Students also identify the school library as an important part of their learning experience in school (Todd, Kuhlthau, & OELMA, 2004). International studies have linked student achievement and the presence of professionally staffed and accessible school libraries. While there is a general agreement that the school library is an integral part of a school, the impact of the school library on educational outcomes has not been clearly established. As an example, research exploring the role of school libraries in supporting teaching and learning has not been completed in Canada (Haycock, 2003). Our work represents the beginning of a program of research that explores the impact of successful school libraries and students' attitudes and literacy behaviours. Through a case study approach focusing on exemplary library programs, our purpose was to better understand the impact these programs have on school practices, teaching, and students' attitudes and learning.

Method

Our research was conducted in eight elementary schools located in southern Ontario that were identified by the Ontario School Library Association (OSLA) as having exemplary school library programs. The schools were from three public boards and one catholic school board, representing a large city, a midsized city, suburban and semi rural regions. We carried out two detailed case studies that included two full days observing the library program, and interviews with teacher librarians, teachers, administrators and volunteers. Six smaller case studies omitted the observations from the data collection. In each case, we interviewed teacher librarians, teachers,

administrators, and volunteers. We also surveyed students from 21 Grades 4, 5 and 6 classrooms in these schools. A total of 331 student surveys were completed (41% return rate). To minimize the impact on the classroom teacher, the surveys were sent home with the students to complete. The return rate varied from 17% (13 of 75 returned) to 66% (76 of 115 returned). Thematic analyses were completed for the qualitative data and descriptive and inferential statistics were completed for the survey data.

Results

While our original intention was to identify a series of practices or policies associated with exemplary school library programs, we discovered that these exemplary programs were highly variable in their structure and function. Hence our qualitative analyses of the teacher librarians, teachers, administrators, and volunteers' interviews were combined with the observational data to then develop continuum of exemplary school library practice. We were able to identify four distinct levels of the continuum with context emerging as a determining factor. Context was not a simple set of categories, rather, it was composed of interrelated factors that interacted to facilitate or hinder the implementation of exemplary school library practices. Context included factors such as Board policy, funding and staffing models, administrative models, demographic characteristics of the school population, principal and teacher knowledge and skills, physical features of the library, history of the school library and volunteer availability. Teacher knowledge, expertise and openness were essential factors within each context that affected the impact of the school library program on instruction and learning.

Two features were common to these exemplary school library programs regardless of context: a focus on teaching and the teacher librarian as an agent of change. Within a given context, these exemplary programs had librarians who maximized the amount of teaching time they had with children, through strategies that freed time from routines and instructional collaboration. As a change agent in the school, the teacher librarian purposefully sought ways to increase the instructional presence of the school library and promote its instructional role to teaching staff in the school.

Table 1: Exemplary School Library Program Continuum

	Level 1	**Level 2**	**Level 3**	**Level 4**
Library's role in school	Operates within school culture	Partnerships are building	Library is central to learning	Level 3 features plus systematic support
Teacher-librarian's role in school	Seen as a secondary resource	Library is an important resource	Equal partner	
Instruction	Library has peripheral support role Parallel or independent teaching Librarian capitalizes on administrative and teacher decisions	Opportunities for teaching (but viewed as add-ons) Cooperative teaching Actively changing culture	Central role in instruction Collaborative teaching Established a new culture in school	

Program	Library "skills" some teaching is unconnected to classroom instruction	Curriculum and library instruction coordinated	Integration of classroom and library instruction Innovative, opportunistic: Finds solutions to barriers	
Administration	Library viewed as peripheral	Library valued but not seen as central to school's purpose Decision making about the library may not involve the librarian	Seen as central to school's purpose Pro-active in support of the library Shared decision making Librarian involved in school leadership Understands & values the instructional role of librarian Scheduling supports instructional role of librarian	Shared understanding across staff and system (board) of library role (as defined in level 3) System wide valuing and support for library programs (e.g., board level consultant) PD support for librarians, Librarians are required to have specialization
Finance	Library finance decided by administration. Regular allocation	Administration provides additional funding on occasion	Methods to address financial constraints as a regular part of school planning	Finances on a firm foundation

Student Perceptions

The student surveys included 6 open-ended and 27 Likert scale survey items enabling qualitative and quantitative analyses to be conducted. The open-ended questions focused on important features of the library as perceived by students (e.g., "The single best thing about our school library is..., If I could, the one thing I'd do to improve out school library would be..."). The Likert items examined frequency of activities (I go to the school library at lunch time), and perceptions of the librarian's role (The librarian helps me choose books). These items were contained within five major sections: (a) student demographics and school attitudes; (b) library activities during class time and during students' own time; (c) items used in the library and factors that help students choose books; (d) librarian characteristics and perceptions of the librarian; and (e) students' reading attitudes and perceptions of reading.

The students who completed the surveys were in Grades 3 to 8, with the majority being in Grades 4 to 6 (ages 8 to 12 years). The average age of the students was 10.4 years of age. A higher proportion of girls completed the survey (57%). Just under three-quarters of the students were born in Canada but only 50% listed English as their first language, with Chinese (including Mandarin and Cantonese) being the most commonly reported other language. Thus the sample generally represents the diversity of the student population found in these schools, although there were slightly more girls and fewer immigrant students than found in the actual student population of these schools.

School Profiles

When we initiated our research, it was our intention to use the students' surveys to examine the consistency of exemplary school library programs in terms of the services provided to students. However, it became clear that the context within which a school library operated also had a substantial impact in determining the manner in which students accessed and used the school library. Our analysis shifted to examining the range of uses found amongst exemplary programs through the eight case studies. The students were consistent in their praise of the school library and the teacher librarian, but the reasons for their views varied. Through the student data, we developed school profiles that illustrated the variability in these exemplary school library programs and the functions of the teacher librarians. Figure 1 contains those item related to student use of the library. Each line provides the range of student use across the 8 schools and the x gives the average level of usage, illustrating the variability students' average use of these school libraries.

Figure 1: School Variability in Students' Use of the School Library

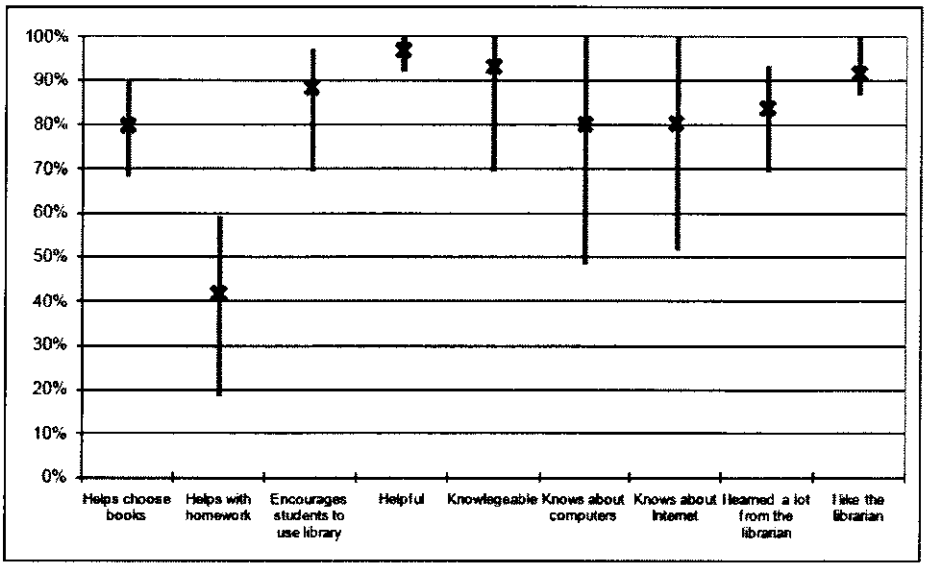
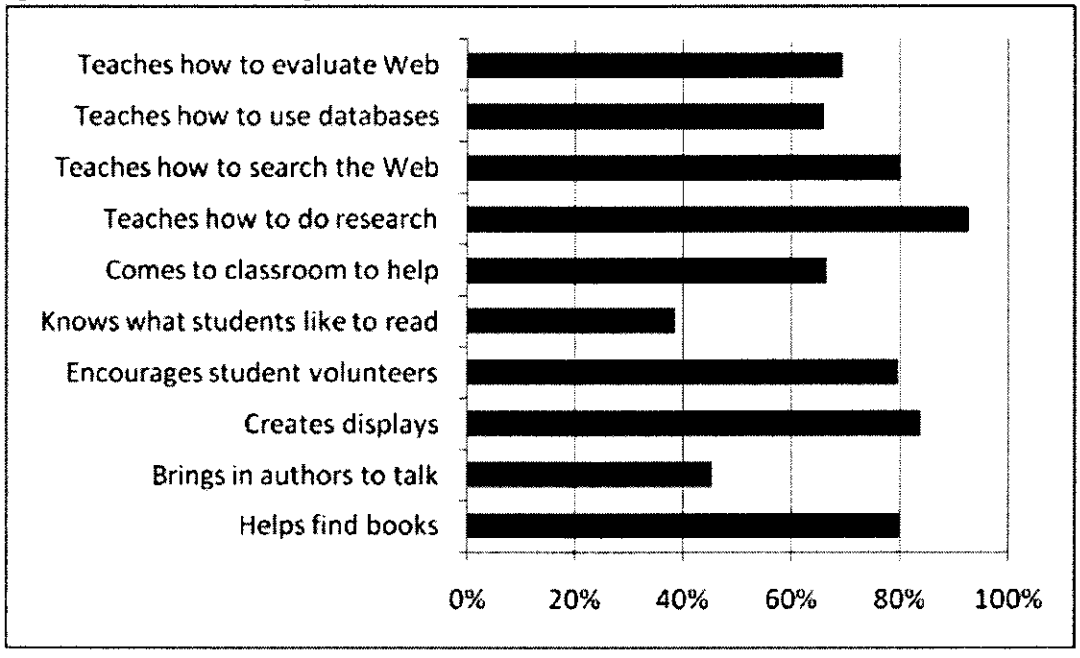


Figure 2 provides a similar set of results based on students' perceptions of the school librarian. As described above, the vast majority of students (91%) stated they liked the librarian (agree or strongly agree). Overall, 83% of the students believe they learned a lot from the librarian, and 93% of the students believed their teacher-librarian to be knowledgeable and helpful. Not surprisingly, students were less likely to turn to the school librarian for help with homework; nevertheless, a substantial proportion of students did turn to these teacher librarians for homework help. These exemplary teacher-librarians were also important sources of learning how to conduct research, access information literacy, search the web and use databases (65%) among other visible responsibilities. Interestingly, 66% of the students reported that these teacher-librarians came to their classrooms. In contrast, a surprisingly low number of students (38%) generally believed that the teacher-librarian knew the kinds of books they like to read. This may be due to the transient nature of students' book choices, typically reflecting the most currently popular titles and formats (graphic novels).

Figure 2: Students' Perceptions of the Teacher Librarian.



When asked about "the single best thing about our school library..." students' most frequent responses (55%) referred to the number of books available or to a specific type of book. "It has SO MANY BOOKS!" More surprising and unexpected was that the next most frequent response were statements referring to the physical space, organization or atmosphere of the library (34%). Students comments included, "there is a lot of room to read quietly;" or "everything in the library is neat and tidy." Students also had suggestions to improve the school library, most commonly focused on increasing the book or graphic novel collection (46%). Overall, these students valued their school libraries and 64% stated they would like to be able to use the library even more frequently.

The students in these schools were active readers and a large majority (76%) reported they liked to read at home and at school and thought they were "great" readers (78%). Ninety-four percent of the students had read a book for pleasure in the past month and 83% reported they had used books to help with their schoolwork. Generally, students reported reading between 1 and 12 books for pleasure (median = 5) and using 1 to 10 books (median = 3) to help with schoolwork over the past month. Asked to name their favourite book students gave a wide range of titles. The most frequently reported (61%) were works of fiction followed in frequency (20%) by graphic novels, comics and humour books.

The Important Role of School Libraries

Our findings demonstrate that exemplary school library programs are an active and valued part of schools in which they operate. These exemplary school library programs and their teacher librarians were well supported by students and teachers. Based on our findings, these teacher librarians and their library programs were exceptional. Yet, the teacher librarian continued to promote and increase the role of the school library with respect to teaching and learning. Teacher librarians made choices that enabled them to maximize the amount of time devoted to teaching within the particular context and increase students' use of the school library. Certainly, the school

context either hindered or supported the amount of teaching occurring in these exemplary library programs. The more enabling contexts allowed for greater collaboration and integration of instruction on the part of the librarian and classroom teacher. Of importance for subsequent practices, we determined that the context was interactive and fluid, and it could be affected by the change efforts of the teacher librarian.

In spite of the changing roles of school libraries, students still valued the print materials that were available in the library. Of particular interest to us, these students also valued the physical space and the arrangement of the library and how this created an atmosphere conducive to students' use of the library. Again, these findings reflect important considerations for the school libraries present in our schools.

Finally, we were also able to place these school library programs along a continuum. Factors associated with the context within which the library programs functioned resulted in unique programs and formed the basis for the levels of the continuum. The continuum served to highlight the ongoing challenges that school libraries face. Even these exemplary school library programs faced ongoing limitations and none of these school library programs were found to be functioning at the highest level of the continuum. Instead, there were libraries that had only part time librarians with limited budgets, and others who were mostly responsible for prep coverage with little time for working with students. A few of the school library programs did have a fulltime teacher librarian who had additional funding and was able to teach and collaborate extensively with classroom teachers. Yet even in these situations, the teacher librarian believed there was a need to continually increase the presence of the school library in order to prevent the loss of time available for a teacher librarian.

To read the full report, go to http://www.accessola.com/osla/bins/index.asp
Follow the "Hot Links" button. The official title is:
Ontario Library Association. *Exemplary School Libraries in Ontario: A Study by Queen's University and People for Education.* By Klinger, D.A.; Lee, E.A.;
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Together For Learning
School Libraries and the Emergence of the Learning Commons

Developed by the Ontario School Library Association
Submitted by:
Larry Moore
Executive Director of the
Ontario Library Association 1984 - 2008 and
Peggy Thomas
2009 President of Ontario Library Association

Executive Summary

Responding to an Era of Complex Change

Today's schools are experiencing a great deal of change. Just as the rest of the world's political, social, economic, and scientific realities have been shifted by swift advances in information and communication technology, so too has education. These forces are altering the way people work, play and learn. Schools are being challenged to harness the unfamiliar yet incredibly fascinating opportunities presented by this transformation... all while ensuring students emerge with the skills they need, not only to survive, but to thrive. Development of a Learning Commons addresses this challenge.

What is a Learning Commons?

A Learning Commons is a flexible and responsive approach to helping schools focus on learning collaboratively. It expands the learning experience, taking students and educators into virtual spaces beyond the walls of a school. A Learning Commons is a vibrant, whole-school approach, presenting exciting opportunities for collaboration among teachers, teacher-librarians and students. Within a Learning Commons, new relationships are formed between learners, new technologies are realized and utilized, and both students and educators prepare for the future as they learn new ways to learn. And best of all, as a space traditionally and naturally designed to facilitate people working together, a school's library provides the natural dynamics for developing a Learning Commons.

Why a Learning Commons?

There is growing consensus among educators that students need to learn transferable skills in order to work efficiently and successfully in our future world. To achieve this, students will need to become critical consumers of information, effective problem solvers, capable decision makers and innovative communicators as well. They will require the skills and ability to flow with change. And

most of all, students will need to understand that these transferable skills give them the capacity to make a difference in this world... personally.

A Learning Commons provides boundless opportunity for growth. It is based on a cross-curricular perspective that recognizes literacy, numeracy, knowledge, thinking, communication, and application as foundations for learning how to learn. A Learning Commons becomes the physical and virtual catalyst where inquiry, imagination, discovery, and creativity come alive and become central to growth — personal, academic, social and cultural.

The Role of the School Library in a Learning Commons

The school library, a key component of a Learning Commons, has an integral and transformative role to play in implementing this fresh and innovative vision for education. Every member of a school's population will ultimately participate in the creation of a Learning Commons, but the concept's early coordination and leadership will rest with school library expertise. Where properly developed, a school's library is already the hub for networking and information access. As the Learning Commons' concept grows, a school library's collection-based facilities will continuously change and expand, creating access-based services suited to a school community's needs.

This process will mean changes in the operations of a school's library. Resource collections will need to be reshaped even more rapidly and readily than they are currently to reflect their communities as well as the world at large. It is the only way a library's access to the global, interconnected and interactive communication networks of the future — whatever they may be — can be assured.

The New Learner

Educators of today understand that when students are provided with rich learning experiences and opportunities to explore areas of interest, they learn better. When they're given tools to solve problems and encouraged to think creatively, they're ultimately better equipped to make useful connections with the real world. The search for more relevant content and experience has driven much educational practice in recent years. But it is how this needs to be done that is undergoing incredible change. Technology is rapidly modifying the nature and significance of information. The context for finding relevance is in radical transformation.

For those younger than 25, a technologically-rich environment is a natural part of everyday life. The interactive and social nature of digital technologies is woven seamlessly into their lives. To them, the online world is a reflection and extension of the offline world. For this generation, it is not about the technology, it is about life.

- Young people are very social, and depend heavily on technology to keep in constant touch with one other.
- They use social media routinely and through their use, define themselves as individuals.
- They are growing up in a media-saturated environment; information and ideas are accessed and shared in extremely visual, multi-media formats without concern or deliberation.
- They expect that you can have conversations with anyone in the world.
- They use multiple technologies to obtain and share information on an "on demand" basis.

- Most "wear" a variety of portable devices allowing them to stay in contact with friends and family, access the Internet, listen to music, watch videos, play games, and take photos and videos.
- They expect to have access to electronic information quickly and easily. Most have never known a world where this wasn't possible.
- They embrace new technologies readily and transfer their skill with one technology to each new technology.
- They are comfortable learning informally with their peers as the technology brings them together socially.
- They are multi-taskers. It is not uncommon to see them chatting on cell phones, surfing the Web, sending instant messages, watching TV or listening to music, all while doing their homework.

The Challenge

The structure of school learning was built more than a century before digital communication was developed, and since then the structure has not changed significantly. It is no wonder there is a growing disconnect between the way students live with technology outside school, and the far more restricted use of technology they experience inside a school.

Many students are finding it almost impossible to make meaningful connections between what they learn at school and what they need to know outside in the world. The skills needed to be successful in life, technology notwithstanding, remain largely the same. As much as ever, a learner must be able to attain the ability to think critically. But the tools to carry out decision making are expanding and merging with remarkable speed and subtlety. What a student will need to be able to do in a school, in a workplace, or at home is experiencing radical change. How we teach time-honoured skills has to change as well. The Learning Commons provides the environment for this transformation.

The Emergence of the Learning Commons

Vision

The Learning Commons integrates the new and the old in a seamless physical and virtual space in which all formats can be assimilated and studied. The Learning Commons liberates the exploration of ideas and concepts, encouraging inquiry, imagination, discovery and creativity through the connection of learners to information, to each other and to communities around the world. For schools, the Learning Commons incorporates the classroom, the school library and the school board to connect students to the real and virtual worlds that are growing and maturing around them.

Just as the Internet has created a web of global connections, information and interactions, the Learning Commons creates a network of information, people and programs for learning within a school and beyond. Universal access ensures that learning is within reach of everyone at all hours... day or night.

The Learning Commons Creates Empowered Learners

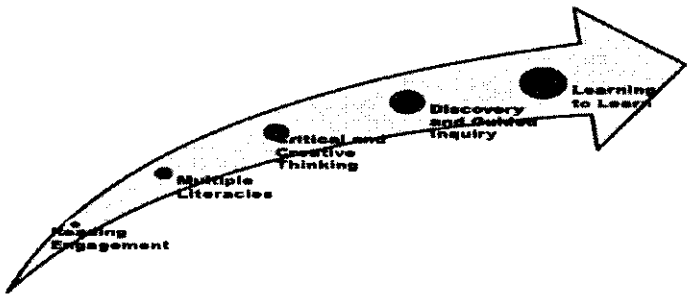
In the Learning Commons, everyone is a learner. Learning within the curriculum becomes personalized, individualized, motivating and enlightening. The Learning Commons addresses multiple learning styles and learning levels. It creates virtual spaces that are flexible and inviting. It ensures equitable access for all. And the Learning Commons seamlessly integrates technology with working together. The Learning Commons helps students view learning as a life pursuit. Students will see learning modeled by everyone in a school. As a result, students of a school with a Learning Commons will become empowered by learning how to learn.

Learning to Learn: From Information to Knowledge Creation

The real mandate of the Learning Commons is to design, facilitate and support dynamic learning experiences that utilize the best available resources, technologies, strategies and learning environments.

Learners move beyond merely retrieving factual information to constructing personal meaning and building individual and collective knowledge. As learners read, research, experiment, discover, perform and create in the Learning Commons, they collaborate with others to test, confirm and enrich their learning.

Guiding learners along their information to knowledge journey, and providing needed instructional interventions, is the focus of all partners in both physical and virtual learning spaces.



Exploiting resources for information and mastering technological applications to gain information is just the beginning of this journey. When teaching partners design higher order thinking learning experiences that take advantage of the social dimensions of learning, the potential for deeper understanding and the building of collective knowledge is enhanced. When learners take responsibility for learning — when they begin building their own personal learning networks — learning for life is on the horizon.

Throughout all activities in the Learning Commons, both students and teachers strive to improve. Metacognition of content understood as well as skills and processes gained helps to build learning to learn skills and attitudes and responsibilities. The rich variety of resources and technologies as well as flexible physical and virtual spaces in the Learning Commons enhances differentiated instructional opportunities in the information to knowledge creation process.

The school library program has a central role to play in nurturing the Learning Commons' culture of imagination, discovery and creativity.

Developing the Individual in the Learning Commons

Society needs citizens who have respect for others and who understand their responsibilities in participating in a safe and lawful society. Issues such as plagiarism, privacy, intellectual property, copyright, bias, stereotyping and gender all require deep understanding, as well as reasoned acceptance or rejection. With today's nearly unlimited amount of information available and vast amounts of unfettered content to be shared, these considerations have become even more sensitive and significant. As a key partner in the Learning Commons, school libraries and teacherlibrarians can offer expertise in navigating this vast array of information

The Engagement of All Learners

If learning is enjoyable and challenging, learners will do it enthusiastically. Think of a video game that players are keen to concentrate on for hours. They do it because it's "hard fun." Turning hard work into hard fun requires helping students relate their work to their own lives and the culture in which they live. This type of learning, inherent in the Learning Commons, is sticky — it stays with the learner. And it creates an environment where the individual will grow and flourish.

Transition and Change

In the current state of the world, creativity, innovation and imagination play key roles in children's development. Young people need to learn transferable skills that make them critical consumers of information, effective problem solvers, capable decision makers and exciting innovators. They also require a level of knowledge and a diversity of expression unprecedented in human history.

Currently, many students are finding it difficult to make meaningful connections between what they learn at school and what they need to know outside of school. The Learning Commons has the potential to bridge that gap for students. The Learning Commons can make learning more pertinent, engaging and significant.

Pedagogical Shifts Inherent in the Learning Commons

Information Seeking and Reporting		Individual and Collective Knowledge Creation
Teacher directed learning	➡	Self and participatory learning
Classroom learning	➡	Networked and global learning
Standards driven	➡	Exploring big ideas and concepts
Teaching	➡	Process and active learning
Individual teacher expertise	➡	Collaborative learning partnerships

Making the Learning Commons Happen

The Learning Commons must be fluid; it must grow and evolve with school needs, emerging technologies and global realities. It requires leadership to succeed, and that leadership can only come through the willing co-operation and collaboration of everyone participating in the school learning process.
At the school level, the principal is key in establishing and encouraging working partnerships among staff and students. The principal must provide the climate for cooperation, experimentation and growth. The Learning Commons has great potential, but only when everyone participates.

Conclusion

Just how important the Internet and its networking capabilities have become in our daily lives is impossible to understate. In the 1970s, Marshall McLuhan said that a car is a physical extension of a foot... of a person's total being. If asked now, McLuhan would have to add a cell phone, a handheld device and social media as extensions of a person's total being. It is these devices — and their evolving technologies — that constitute the natural reality of the students in our schools.

The relationship of these new communication tools with our students is what schools and libraries need to absorb and embrace. We are just beginning to realize the power of technology on our communication, research and critical thinking. A new era is still just ramping up. Where it will lead us is, as yet, unimagined. Changes will continue to be profound, exciting... and bigger than all of us.

Together we stand to harness unseen potential.

The Learning Commons provides direction in the face of this great change. The Learning Commons provides schools, school libraries, educators and students with the increased flexibility and breadth of control needed for the challenges ahead.

Ontario School Library Association

Acknowledgements

This executive summary is an abridgment of:
Together for Learning: School Libraries and the Emergence of the Learning Commons, Developed by the Ontario School Library Association with the financial support of the Literacy and Numeracy Secretariat of Ontario's Ministry of Education. 55 pages. ISBN 978-0-88969-056-1

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Transforming Canadian School Libraries to Meet the Needs of 21st Century Learners
Alberta Education School Library Services Initiative – Research Review and Principal Survey Themes

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April 2010

Alberta

Government of Alberta

> The hallmark of a school library in the 21st century is not its collections, its systems, its technology, its staffing, its buildings, BUT its actions and evidences that show that it makes a real difference to student learning, that it contributes in tangible and significant ways to the development of ... meaning making and constructing knowledge. (Todd 2001, p. 4)

In improving education, reform expert Richard DuFour states, "All policies, programs, and practices are considered through the lens of 'How does this impact student learning?' Those that encourage learning are embraced. Those that interfere with learning are discarded" (DuFour et al. 2004, p. 174). In its review of equitable student access to library services, Alberta Education's School Library Services Initiative examined research and conducted a survey with school principals. School library transformation to a learning commons perspective emerges as pivotal in the role school libraries can fulfill in 21st century educational reform.

Ideally, a school library learning commons provides seamless access to library services for all students, acting as a "learning central" or the "heart" of a school's reading and inquiry activities that are intentionally connected with curriculum. These school library learning commons are interactive, lively learning environments in which professional learning teams collaborate. As a result, students achieve learning outcomes as they interact with knowledge in its variant forms—fiction or nonfiction, print or digital—to access, evaluate, dialogue about and construct new knowledge, and reflect on what they have learned. For many students experiencing physical, emotional or cognitive learning challenges, the learning commons can personalize independent learning success. Alberta, however, not unlike many other provinces, states and countries, has experienced a decline in student access to quality school library services.

Extensive research supports the correlation of advanced student achievement and literacy development with quality school library services (Krashen 2004, Lance and Loertscher 2005). Many school libraries strive to meet the Canadian national standards developed in 2003 by the Canadian Association for School Libraries (CASL). Research conducted in 2002 within a large metropolitan public school system in Alberta (Sykes 2002) is consistent with today's literature in revealing essential themes for equity of student access to quality school libraries. One such theme from the research literature involves inquiry-based (constructivist) school library learning experiences—collaboratively planned and taught—that enable student access beyond "walls" by extending the classroom across the curriculum to other libraries and the world and allowing the world to come in to the classroom.

Impediments to student access to quality school libraries are identified in this study and are consistent with those found in current research. These impediments include:

- gaps between resources and technology/technology support
- not understanding the effects of school libraries on student learning and achievement
- nonflexible scheduling of student library learning time
- need for active administrator support, i.e., principal, district

To overcome impediments, the 2002 study within a large metropolitan public school system, in conjunction with the University of Portland, recommended addressing issues around training and hiring accredited school library personnel, with the understanding that roles and responsibilities have evolved; e.g., unlearning old understandings or perceptions and broadening stakeholder in-

servicing, based on current best practice in the field. Accountability measures are essential to ensure seamless student access to library services in support of learning outcomes with a need to understand and develop program-based budgets and partnerships for seamless student access to quality school library services.

Rapid developments in emerging technology continue to highly impact schools, learning and libraries. "Research that once required days in the stacks or periodical rooms of libraries can now be done in minutes ... that boon comes at a price" (Carr 2008, p. 1). Students, relying heavily on search engines such as Google, are becoming adept at skimming and scanning the Internet for articles and information, but are lacking in-depth reading, critical thinking and analysis skills that result in deep and intensive learning and understanding. In Alberta, student access to an Internet connection at home continues to grow; as of this writing, 89 percent of Alberta students have this access.

According to a 2008 report by the British Library and Joint Information Systems Committee (JISC), "The information literacy of young people has not improved with the widening access to technology. ... Young people have a poorer understanding of their information needs and thus find it difficult to develop effective search strategies" (p. 12). In addition, "the lack of strategic [United Kingdom] government support for information literacy programs" (p. 23) has impacted students entering higher education.

Although the United Kingdom is just starting to collect data in this area, "the USA has much research available showing a large minority of freshmen entering college and university with low levels of information literacy and high levels of library anxiety" (p. 23). Intervention at the university level was proven to be too late; information skills need development in the formative years. The report hypothesizes a future "information environment 2017" with the following "powerful trends" (p. 26):

- a worldwide unified Web culture
- the inexorable rise of the e-book
- the continued content explosion
- emerging forms of scholarship and publication, including prepublication release and online peer review
- virtual forms of publication in various formats
- the semantic Web, in which computers become capable of analyzing all the data on the Web, especially in areas like e-science.

The main message the authors of the report wish to impress upon information experts is that "they have no option but to understand and design systems around the actual behaviour of today's virtual scholar. ... This should start with effecting that shift from a content-orientation to a user-facing perspective and then on to an outcome focus. ... This will require concerted action between libraries, schools and parents" (pp. 31–32).

According to authors Loertscher, Koechlin and Zwaan (2008) in describing the learning commons perspective, the shift from a content-orientation to a user-facing perspective is central to the school library learning commons. The authors describe activities and spaces in the physical and virtual learning commons as flexible in design to accommodate a variety of learning activities; e.g. collaborative community spaces, a "coffee house" concept. This environment supports students in critical thinking, inquiry, action research and interdisciplinary learning, and supports what brain research evidences. Students access active learning, in real time and online, with project-based,

problem-based, experiential and cooperative learning, ideally coordinated by a teacher-librarian. The learning commons becomes a gateway to the virtual landscape, incorporating "knowledge building centres" and 21st century resources; i.e., Web 2.0, social networking, gaming, podcasts, animation, film, remix, online databases, other libraries.

According to Loertscher, Koechlin and Zwaan (2008), the learning commons is a collaborative space, created by users, that turns the library into the "center, the network, of social, cultural and learning in the school ... the place, either physical or virtual, that is the hub of the school, where exemplary learning and teaching are showcased, where professional development, teaching and learning experimentation and action research happen, and where the various specialists of the school [have their] office[s] (whether virtually or physically)" (p. 123). They indicate that shifting to the perspective "does not require years of planning and astronomical budgets ..." (p. 3), but the authors indicate a shift that encompasses the following three points (pp. 122, 125):

- Open Commons: The place, both physical and virtual, where classes, individuals, small groups, and events are scheduled to benefit from the support and expertise of specialists, resources, and a comfortable learning environment. The Open Commons is not regularly scheduled by any group but is available using its own calendar booking system.
- Expert Bar: A service, either physical or virtual, in the Open Commons where students and adults provide individual or small-group advice and information tutorials on software and hardware.
- Experimental Learning Centre: The place, both physical and virtual, where professional development, action research, and experimental programs are being tested, exhibited, and analyzed before going out for widespread adoption in the rest of the school."

Research identifies one of the most important factors for seamless student access to school library services: the active support of the school principal (Henri, Hay and Oberg 2002; Asselin, Branch and Oberg 2004; Haycock 2006). Commonly, in schools, the complex work of the principal involves balancing many agendas, policies and roles to meet the learning needs of all students in an increasingly complex society. Principals advocate for students on many levels with available resources as they want their students to achieve learning outcomes. Many principals have forged forward to make the school library the heart of student learning in the school (Sykes 2002); yet, there is an increasingly vast disconnect between educational leadership, administrator and teacher literature with school library learning impact literature (Krashen 2004, Lance and Loertscher 2005). Researchers such as Zmuda and Harada note that principals may be unaware that a great amount of school library literature actually focuses on teacher-librarians as learning leaders. The principal's duty "is to construct a meaningful role for this position in the architecture of the school leadership team ..." (Zmuda and Harada 2008, p. 24).

> The goal is not to increase collaboration but to improve student performance. The goal is not to force staff to attend professional development; the goal is for them to improve their practice in order to improve student performance. The goal is not to garner more respect for the learning specialists; the goal is for the interactions between learning specialists and staff to help the system improve its overall performance. (p. 31)
>
> Zmuda and Harada expand on this when discussing: personalizing the learning experience and depersonalizing the profession ... Library media specialists can be valuable partners in several critical dimensions of differentiation in the personalization of learning: providing resources (for diverse learners), assisting in the construction of products (that encourage

> students in their preferred modes of learning), and teaching critical thinking processes (balancing products with processes of learning). (pp. 58, 62)

In Alberta and beyond, principals are faced with multiple needs and limited resources. They are accountable for ensuring all students have certificated instruction that supports a program of studies. Most programs of study, including Alberta's, mandate information literacy skills and processes in most curricular subjects. Principals are finding that they must explore as many options as possible to support students in achieving these learning outcomes. According to the *Guide to Education: ECS to Grade 12, 2009-2010*:

> Students in Alberta schools should have access to an effective school library program that is integrated with instructional programs. Such library programs improve student opportunities for achieving a basic education.
>
> Student learning experiences should integrate information retrieval and research skills. These skills are learned best within the curricula. To promote integration, opportunities for cooperative planning between teachers and teacher-librarians should be provided.
>
> In an integrated school library program, the services and activities are not peripheral or supplementary to the school's instructional program; they are an essential and dynamic part of it. The integrated library program widens, deepens and personalizes learning by involving students in the planned and purposeful use of resources. Library resources are designed to help students expand their abilities to find, generate, evaluate and apply information. Developing these information skills will, in turn, prepare students to function effectively as individuals and as full participants in society.
>
> An integrated school library program attends not only to its formal instructional role, but also to its function as a centre for informal learning. As a resource centre, the school library should be a place where students can pursue their individual educational interests.
>
> For more information, see *Focus on Inquiry: A Teacher's Guide to Implementing Inquiry-based Learning* (2004). (p. 69)

So what is a principal to do? Collaborative teams in professional learning communities have stood out as one of the most successful sustainable improvement initiatives used to advance student learning in the reform of schools in the past few decades (Eaker, DuFour and DuFour 2002; DuFour et al. 2004). This model, familiar to many schools, could be extended to develop school library learning commons teams.

DuFour recommends developing "high performing ... collaborative teams that work interdependently to achieve common goals," (pp. 3, 5) taking an effective solution to a better one by drawing on collective opinion and research into the most effective practice to cocreating data-driven action plans: list of steps, focus of steps, and funding for steps. A solid foundation is first established for the school with which the learning commons is in direct alignment, including collaboratively developing and widely sharing mission, vision, values and short- and long-term SMART goals (strategic and specific, measurable, attainable, results-oriented, time-bound). The school develops a results-oriented culture that is focused on learning (students, pre- and post-graduates, adults), with a commitment to continuous improvement based on measurable performance standards. Library teams explore accountability measures at the school site using

regular reporting practices already in place to reflect upon, evaluate or measure their services in alignment with their particular school, district, provincial or state learning goals and policies. School library services measurement, linked with innovative research studies, could focus on such key questions as "How can we ensure that students leave school having learned how to learn? Having learned how to know when they need information? Where to find it and how to know if it's any good or not" (Lance quoted in Achterma 2007, p. 1)?

In June 2009, Alberta Education's School Library Services Commission administered a school library services survey to all school principals in Alberta. The purpose of the survey was to determine baseline data to develop strategies for levels of access to school library services and chart gaps and growth around inputs that affect student learning access outcomes. The survey return rate was 629 out of 1778 schools for a 37 percent response rate, indicating that this is an important issue for Alberta schools. In surveys, larger response rates narrow the confidence interval and reduce the margin of error, which increases the ability to generalize the survey results and apply them to the overall population. The survey results confirmed the need to review Alberta Education's *Policy, Guidelines, Procedures and Standards for School Libraries in Alberta*, 1984 and have helped inform the development of a 2010 draft policy and guidelines document which will undergo further consultation. A detailed summary of the survey results is available on the Government of Alberta Web site (see References).

Alberta Education's School Library Services Initiative (SLSI) has worked with the Alberta Education (AE) Policy Development and Research Branch, the School Library Stakeholder Advisory and AE Inter-branch Committees to revise the 1984 school library policy and prepare the 2010 draft *Library Access Policy*. Consultation on the draft policy with stakeholder associations was held January 21st, 2010 - April 6th, 2010. A summary report reflective of the responses with draft policy edits will be shared with these committees prior to re-submitting to Alberta Education. The survey data will also inform the development of innovative models that enable schools to take incremental steps toward implementing seamless student access to school library services. Survey data documenting the qualifications and full-time equivalencies of school library staff will provide insight into audience and content development for innovative in-service models.

A gap analysis of the survey results prepared for the draft policy consultation process revealed three key themes. The first related to *planning for student learning* for library services. Principal responses indicated that

- 58 percent did not have a current School Library Services Plan
- 80 percent did not link student learning outcomes to school library plans in their annual education plan
- 66 percent did not have a collection development plan
- 64 percent did not have a budget plan.

Key strategies to explore planning for student learning include:

- implementing the school library learning commons perspective
- providing exemplars that:
  - model effective learning commons access outcomes strategies, library resources collections and budgeting tools
  - address how to link student learning outcomes to school library access outcomes, and develop student learning rubrics and/or continuums to facilitate the linkage

- studying how school-based assessment data correlates with school library learning commons development
- examining and encouraging additional research that focuses on the impact of student learning on the school library learning commons; e.g., university or district research.

The survey's second theme related to *pedagogical support for student learning.* Principal responses indicated that:

- 57 percent do not have school library related coplanning and teaching
- 90 percent do not have a teacher-librarian
- 74 percent have less than 0.5 FTE assigned to a teacher to coordinate library services
- 35 percent use a library technician or clerk to attend the library
- 35 percent use a library assistant/clerk to attend the library
- 30 percent have no staff with any form of library training attending the library.

Key strategies to explore pedagogical support include:

- building capacity around understanding the roles and responsibilities of all staff on a school library learning commons team in supporting student learning
- developing innovative in-service models that address the interdependence of a school library learning commons team in the provision of a student's co-planning and teaching, recreational reading and reference needs.

The third theme related to *student seamless access to physical or virtual school library services.* Principal responses indicated that:

- 21 percent only open the school library at selective times throughout the week
- 70 percent do not have their catalogue on the Internet
- 71 percent do not have a school library Web page that students could access from the Internet.

Key strategies to explore student seamless access to physical or virtual school library services include:

- clearly defining "seamless access" with the inclusion of physical and intellectual access for all students in both time and place, ensuring each school library learning commons becomes a portal to the world and allows any time, any place, any pace learning
- developing and/or highlighting innovative student learning models in the physical and virtual learning commons.

A variety of innovative models and templates are being explored to be adapted or developed to provide students with seamless access to library services within the contextual uniqueness inherent in every school. School library services teams can take incremental steps to envision and create school library learning commons strategies for all students, without incurring additional financial pressure to create enhanced learning commons services and support.

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Teacher-Librarians and the New Learning Divide

Part One: Bridging the Learning Divide
Previously published in *Feliciter*, Volume 55 No. 6 (2009),
Canadian Library Association.
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Part Two: Teacher-Librarians Learning to Learn

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Part One: Bridging the Learning Divide

The digital divide of 2009 is no longer about access to computers and networks. It's about the disconnect between the way students interact with technology in their own lives, and the far more restricted use that they experience at school. Concern about this divide is growing in education, but the challenges are far more daunting than bridging the first digital divide ever was. It turns out that buying computers and hooking them up to networks was not the magic bullet that many hoped it might be. The digital divide of a decade ago has morphed into a far more complex learning divide in our schools.

While computers have become more widely available in schools, concerns persist about how they are being used. Statistics Canada's *Information and Communications Technologies in Schools Survey* (ICTSS) of 2004 reported that teachers were twice as likely to incorporate word processing into instruction than any other type of application, including accessing the Internet. Software to support creative works was used minimally. Yet in 2005, the Media Awareness Network was reporting that ninety-four percent of kids had access to the Internet at home, with a significant majority having high-speed connections. Kids were connected and online, using computers and increasingly using mobile devices. They were engaged in technology for entertainment, communication, and creating multimedia content. Kids' online world was becoming a seamless extension of their offline world. Everywhere, that is, except at school.

We have built the physical infrastructure for technology in our schools, but we are not maximizing its potential for engaging students in learning. While there are many innovative educators harnessing the potential of networked, social, online learning, computer use in schools is largely very restricted. Moving beyond the new digital divide presents daunting challenges.

Technology on the Fringes of Curriculum

The first challenge is the most significant. The effective use of information and communications technologies (ICT) remains largely on the fringes of curriculum expectations and the instructional focus of Canada's school systems. The use of technology in instruction is considered optional except in some specialized subjects, and consequently it is not broadly or effectively used. The Ontario Public School Boards' Association addressed this in its discussion paper, *What if: Technology in the 21st century classroom* (2009). The paper calls for, "a vision of program revitalization, technology embedded in curriculum methodology and expectations, a wireless learning environment that moves us from desktop to mobile devices, leveraging what is already available in the world of information and communications technology where lateral learning thrives and social networking is a force for democratic change."

Teaching the Teacher

Principals responding to the ICTSS survey commented that teachers in their schools were far more competent in computer tasks required of them for administrative purposes like reporting, than they were in the instructional use of technology. Teachers' personal confidence and competence with technology and ICT curriculum integration are significant factors determining how much or how little access students have at school (Bingimlas, 2009). In combination with lack of time, effective training, technical support and the accessibility of resources, these factors deter many teachers from integrating ICT into their instructional programs.

The Fear Factor

Technology is a pervasive part of modern life, yet society tends to be very cautious about its use when it comes to children and schools. Read an article about cell phones or iPods in schools, and it will almost certainly be about their disruptive influence – cheating, bullying, distracting, rather than on the powerful options for learning that mobile devices offer. When progress in technology butts its head against concern for children, lack of knowledge sometimes translates into uncertainty and fear. Attention tends to focus on warning of the dangers rather than modeling the learning potential.

Security and Content Filtering

School boards have huge challenges in maintaining complex technology infrastructures and keeping networks secure and reliable. Content filtering software is used by the vast majority of school districts to block truly malicious content, as well as content perceived to be dangerous to young students. Student safety is the most frequently used explanation for the widespread practice of blocking access to social networking sites and resources such as YouTube. There is growing understanding, however, that trying to keep students in a protected bubble may ultimately be ineffective. "Safety policies remain important, as does teaching students about online safety and responsible online expression – but students may learn these lessons better while they're actually using social networking tools." (National School Boards Association, 2007).

The School Library

The ICTSS survey of 2004 revealed some encouraging statistics about the role of school library programs. According to David Coish of Statistics Canada, as the number of teacher-librarians dedicated to a school increased, so too did the likelihood that computer applications were incorporated into teaching practices. The absolute amount of funding for the library was also

strongly associated with the use of computer technology in teaching practices. Coish does caution, however, that the level of teacher-librarian staffing itself may reflect the overall higher funding of the school, and therefore its ability to provide technology resources. "Also, the degree to which teacher-librarians have a role in incorporating technology into teaching practices will vary with the responsibilities of each librarian, their skill level and the availability of other technical support in the school." (Coish, 2005).

Libraries Taking the Lead

Despite Coish's cautions, bridging the new digital divide should be seen as one of the prime goals of school librarians in Canada. From the increase in electronic resources in our collections to the inquiry-based and collaborative approach of the teaching program, the library can support teachers and students as they explore the huge learning potential of technology. New thinking about the library as a learning commons (Loertscher, Koechlin & Zwaan, 2008) places the library as a "client-side" learning space, where the teacher-librarian, technology teacher, other professionals and support staff work to bridge the "digital chasm" between the technology habits of students and the traditional nature of schooling.

If we are to take this leadership role, it is incumbent on all school library professionals to break their own professional learning barriers as they relate to technology. We need to kick our own networked professional learning up several notches if we are to help lead the way across the digital learning divide.

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Part Two: Teacher-Librarians Learning to Learn

Bridging the new digital divide should be seen as one of the primary goals of teacher-librarians in Canada. Such was the conclusion drawn in the first part of this paper, published in *Feliciter* (2009) under the title, "Bridging the Learning Divide". This follow-up explores what that implies and what it will take to get there.

There is no doubt that the notion of 21st century learning, the buzz phrase that encapsulates a myriad of concepts but tends to focus on the burgeoning importance of digital literacies, has captured the collective imaginations of many educators. After years of discussion in the professional literature and lively online conversations in the education and library blogospheres, the implications of shifting technology seems to be getting the attention of education policy-makers. Publication of the paper, *What if?: Technology in the 21st century classroom* by the Ontario Public School Boards' Association in 2009 has brought the discussion into the mainstream of educational discussion in the province.

We are finally getting to a place where educators cannot ignore the world around them anymore. It is becoming more and more apparent that shutting the doors of the school and pretending that the rest of the world is not reading, exploring, communicating, socializing and creating online is not a viable long-term strategy. "Teachers need not fear that they will be made obsolete. They will, however, feel increasing pressure to bring their methods – along with the curriculum – into line with the way the modern world works." (Wallis C. & Steptoe, S., 2006).

School library professionals have a greater responsibility than other teachers to bridge our own learning divide when it comes to technology for some very basic reasons. Information is our "subject". For this reason alone, we have a professional responsibility to be informed and knowledgeable about the great shifts that are taking place in the technology and context of information today. The inquiry process is at the heart of what we teach. It is our responsibility to explore opportunities to enhance learning experiences and to engage students with the powerful use of media and online social media.

Teacher-Librarians as Information Specialists

At the most basic level, we need to understand our own resources, which are increasingly going online. In Ontario all of our school libraries now have access to a suite of online encyclopedias licensed by the Ministry of Education and a wide selection of online research databases licensed for us by Knowledge Ontario. Yet there are still many amongst us, unfortunately, who see these as collections apart, and not an integral and essential part of our libraries. We do a disservice to our clientele by not actively promoting these resources, being thoughtful about how we facilitate access, and explicitly teaching how to use them effectively. "Teachers and librarians must ensure that these valuable materials get used and are no further than a click or two away from learners. Students who do not have access to this substantial content, students who choose not to use them, are part of what I consider an information underclass." (Valenza, 2007).

At a higher level, we need to know our own subject: billing ourselves as information specialists has no meaning if we are not exploring and seeking to understand how technology is dramatically shifting our information environment. We should be embarrassed by colleagues stuck in old-school defensiveness and snobbery about Google. Instead we need to be Google gurus, teaching not only when it's not the best research starting point, but also when it is.

But let's not leave it at Google. Being an information specialist in 2010 means seeking to understand how social media is shifting our notions of authority. Wikipedia truly does get better the more it is used. Understanding when it's useful and when it's not is our responsibility as information specialists. Trying to assess the quality of a Wikipedia article by traditional benchmarks or using our standard website evaluation rubrics is meaningless. It is our responsibility to explore and deeply understand the resources to which our clientele naturally gravitate, and to help them to use these appropriately and knowledgeably.

Today's information specialists are intensely curious about our new information culture – phenomena like the "long tail" of information that exists on the web outside of traditional publishing structures. Where once this type of information would have been virtually unfindable, today's world of user tagging and RSS means that it can spread "virally". Today's information specialists seek to understand, use and appreciate the "folksonomies" of user-generated tagging. They are interested in how new developments in search interfaces are improving our own library systems, and how the integration of a social layer on top of their controlled vocabularies and taxonomies improves the user experience and empowers learning.

Today's information specialists explore all of these changes and help others to navigate and think critically about this new and ever-shifting landscape. This is our "subject" as teacher-librarians, and just as we expect science teachers to keep their subject-specific knowledge current, so should our clientele expect us to keep abreast of our shifting information culture and keep up our own expertise.

Understanding Our Students' Abilities as Well as Their Needs

And what of our knowledge of how our students truly experience information, and of their real information-seeking behaviors? Today's teens are immersing themselves in the interactivity and social nature of the new web, and this is shifting the ways that they seek, synthesize and use information. More and more, information is being seen not as content to be passively consumed, but as a commodity to be creatively transformed.

Early research into teen information-seeking looked at search behaviors in isolation. This approach, viewed from the perspective of time, was misleading and gave a false and negative view of teens. More recent research recognizes that one cannot understand the information behaviors of a young person without considering cognitive, social and emotional development. The research is also starting to broaden the understanding of youth information-seeking to contexts outside of school and outside of the familiar information systems provided by libraries. It is clear that much remains to be studied and to be understood. It has also become clear that this research is vital to information scientists seeking to make systems more relevant, librarians seeking to serve clients more powerfully, and educators seeking to keep learning relevant to the context of twenty-first century students' lives.

Although these recent trends in research are encouraging, Dresang (2005) observes that while the existing research on youth information-seeking is helpful in defining some overall trends, it tends to focus on the deficiencies of the information-seeker rather than "ferreting out the potential of new and exciting ways of knowing in a digital age". He concludes that new information that is coming to light about the collaborative behaviors of youth as they explore information may alter the interpretation of previous research. Dresang also suggests that new digital age principles of interactivity, connectivity, and access could bring new and perhaps more positive perspectives on teen information-seeking to researchers and professionals.

The reality is that teens are more engaged in information now than they have ever been before, because the information world has, to a large extent, adopted the social construct of collaboration that is most natural to them. David Warlick states that, "part of the value of the content is what they can do with it: they build new information products in imaginative ways" (Warlick, 2008).

The implications for libraries and for education are profound in this new reality. Loertscher (2008) suggests that teacher-librarians should themselves be sophisticated users of digital information and Web 2.0 technologies, while still concentrating their teaching on discerning quality information and expertise in the digital space. He suggests that access to digital resources should be based on how students search. Valenza (2006) makes a compelling case for the need to improve information systems – to make them engaging to young users with "context-sensitive support and instruction as well as compensations for vocabulary, spelling, and knowledge gaps."

New Learning, New Literacies

All of this hints at the third area that we have a responsibility to understand, namely multi-media. Where once written text was our predominant means of communication, our new information world is dominated by images and sound. The means to create, transform and share digital media is pervasive and accessible. Clearly this has implications for addressing multiple literacies as we help students read and interpret information. The new Ontario guideline document, *Together for learning: School libraries and the emergence of the learning commons* (2010), recognizes this reality.

> Many students are already collaborative writers and content creators in the digital world. This world provides learners with unprecedented and powerful opportunities to develop multiple literacies. In doing so, learners can develop deeper understanding of the global community. Making writing more meaningful and relevant to today's students means engaging them in this interactive online environment.

In today's context, being effective multi-media and digital writers is arguably as important as being competent in more traditional media. Our responsibility then as teachers is to be multi-media literate ourselves, both as readers and as writers.

Clearly all of this is a challenge. It is a challenge that we must take up if we are to remain relevant. It is our responsibility as information professionals to know our subject, and our responsibility as teachers to engage students in learning. "We are at the crossroads of an unprecedented opportunity. Demands for school improvement, the call for 21st Century skills construction, the growth of Professional Learning Communities, and the potential of emerging technologies and Web 2.0 tools to re-engage the passion of teachers and interest of learners cannot be denied." (Koechlin, 2010).

Barriers to Professional Learning

Our educational institutions are struggling to meet the challenges of using technology powerfully for learning. There is no doubt that there are many barriers, discussed in the first part of this paper. Perhaps some of the barriers exist within ourselves, and with our own acceptance that we must learn how to learn in new ways. It takes a bit of courage and humility to accept our own needs, and give ourselves permission to be naïve and curious learners, rather than falling back on the myths and excuses that really fall within the realm of urban legend.

Take for example the myth of the digital native and digital immigrant. Yes, the students that we teach have never known a world without computers, and yes, there is no doubt that they

collectively seem to have a greater comfort with that environment. But many of us "digital immigrants" speak tech with a pretty good digital accent! Claiming to be a digital immigrant has become one of the biggest excuses for not learning about technology and not moving teaching practice forward into the new century.

Perhaps the divide is in fact a learning divide, not a generational divide. "Someone who tends toward being naturally digital isn't there because of their age or experience with technology. Rather an innate curiosity and ability to learn and adapt enabled that person to embrace new technologies in a seemingly natural way. Many of our students seem to be so-called digital natives simply because they haven't forgotten how to explore and learn." (Harris, 2010).

Overemphasis on generational divides has led to some misleading perceptions of the digital and media literacy of our students. Hobbs and Jensen (2009) observe, "Sadly, neither creation nor sharing is randomly distributed among a diverse group of young adults, since creative activity is related to similar factors as it was in previous times: a person's socioeconomic status." They go on to cite and discuss statistical and research evidence suggesting that in the United States the digital divide may have decreased in terms of exposure to the online environment, but is still firmly entrenched along economic grounds when it comes to content creation.

This presents a compelling challenge for school library programs and teacher-librarians. We are about equity of access and opportunity: it seems that our role in bridging the digital divide is as important now as it has ever been.

Teacher-librarians have a unique opportunity to ground the exploration of new literacies and new tools firmly in the context of true learning. The literature on 21st century learning is replete with platitudes about new contexts for learning. "Minds are not containers, filing cabinets, or databases – places to store knowledge just in case – but resources that can be connected to other resources for the purpose of generating new knowledge." (Gilbert, 2007). There is a tremendous amount of truth in the platitude to be sure, but there is also a tendency to dismiss content knowledge as irrelevant as we explore new ways of learning. We must not forget that exploration and critical thinking are ultimately part of knowledge building. Our students, like us, need to learn their subjects deeply. New ways of knowing are critical, but so too is what we know.

Rotherham and Willingham (2009) warn that not understanding the enduring importance of content as we explore new processes will doom 21st century educational reform efforts to failure. "Such notions contradict what we know about teaching and learning and raise concerns that the 21st century skills movement will end up being a weak intervention for the very students – low-income students and students of color – who most need powerful schools as a matter of social equity."

Learning to Learn: Nature and Nurture

Teacher-librarians, I would argue, have more capacity than most for learning to learn in our rapidly changing technology context. Surely it is in our nature to be inquisitive, since we have chosen to specialize in the inquiry process itself. We also understand differentiation better than most. We do after all have the largest differentiated classroom in the school, with a broad range of resources to meet a broad range of learning needs.

Harris (2010) makes a great case for helping us to understand our own needs as digital learners, arguing that for some of us it comes more naturally, while others may need a bit more nurture. "Professional development, as well as library and classroom instruction in technology, can be

modified to match students' needs. For some learners, a brief bit of nurturing focusing on the benefits and importance of learning a new technology may be enough to nudge them into a more naturally digital approach... In other cases, a typically natural digital learner may need help in adopting a new mindset required for an emerging technology."

Explore, Exploit, Engage

Opportunities for this level of differentiation, to meet the variations in our own learning styles, has never been greater. The very technology that we seek to learn about and understand offers powerful and supportive online, networked learning communities. From the wealth of professional blogs to social networks for professional learning to following peers as they tweet their own "aha moments" and share resources on Twitter, professional sharing has never been more broadly available. From the naturally digital to the nurtured digital in all of us, we can open our minds to learning, explore new frontiers, exploit opportunities for networked learning, and then engage ourselves as digital learners.

Breaking through our own learning barriers as they relate to technology and engaging ourselves in online learning communities positions teacher-librarians as leaders in bridging the new learning divide. We can and should lead our peers into the new work of the school as a learning commons, where learning to learn is the most important literacy of all.

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Part II: Adventures in Program

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Learning Literacies

Why is my Blackberry Sitting on a Pile of Books?

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We can make people read what they don't want to read only as long as they are in school. We often judge the literacy worth of individuals by the place that one particular art form, literature, has in their lives. However, when we begin listing the various forms of print that fill up students' lives, we notice that they read many types of texts: computer screens, sports pages, comics, game manuals, TV guides, and school textbooks. The list goes on.

Those of us who spend our leisure time among books want to pass on our love. We want others to join us in the book club, to enter a bookstore or a library with excitement and to leave fulfilled even before reading our selections. We read the reviews, wait for the Saturday newspaper section devoted to books, talk to our colleagues about book gossip, and hoard our new purchases for holiday reading. Can we reconcile students and books as they grow into adulthood? We can; we do with many. But we will have to rethink our goals, our values, our definitions; to see texts as filling the world, changing us, fulfilling us, surprising us, validating us, informing us, and connecting us to our families, friends, and fellow citizens. Some texts will be print, some image, some both, most electronic, a very few on papyrus or homemade paper.

How will we balance the immediacy of visual images with the power of printed texts? We will not overcome illiteracy by ignoring the media in students' lives and pushing books and magazines, nor will we build literate citizens by excluding reflective, aesthetic, and informative printed texts. It may be more difficult to read a book than to watch a film, but much depends on the nature of the experience and the context and the text itself. Did the student choose it alone or with classmates? From the library? Is there a test on it? Is there time to accomplish the "reading"? Does it require the student to interpret and reflect and rethink assumptions? Is the student changed by what is seen, heard, or read?

We want our students to meet texts of all kinds and formats, to discover the options these can bring to their choices in life, but our definition of "book" is about to change. The year 2009 saw the launch of the Sony Reader, a portable device for digital books and documents, along with digitized titles from major publishers. The Reader is the size of a thin paperback and weighs 250 grams. Writing in the New York Times, Kevin Kelly of *Wired* magazine creates a fascinating manifesto for the coming change to our definition of books. "The world's texts are being electronically copied, digitized, searched and linked. The force of the web lies in the power of relationships. Search engines create a trillion electronic connections through the web."

Literacy instruction is central to schooling, yet for many children and adolescents, becoming effective readers and writers can be a difficult, even painful process. More time is devoted to literacy instruction over the Kindergarten to Grade 12 spectrum than to any other curriculum

area. When one includes the large literacy component found in other school subjects, this fact becomes especially apparent. The reason for this emphasis is clear: reading and writing capacities and interests are crucial for personal and societal well being in the contemporary world. Today, libraries (real and virtual) are filled with tens of thousands of books, journals, websites, e-files, and research documents attempting to provide background in how to teach reading and writing. And yet, more than one-third of North American adolescents struggle to read many forms of texts proficiently.

Researchers have provided insights into other factors that affect children's success in literacy. They have given teachers an awareness of how children develop intellectually and how they find meaning in everything and everyone around them. Ethnographic studies have alerted us to the social context of learning and the importance of a child's home culture. We now recognize the value of teachers establishing links with children's homes – both in order to learn about children from their parents and to allow parents to be partners with the school in helping their children become readers and writers. The most predictive statistical models show that engagement is a mediator of the effects of instruction on literacy achievement. If instruction increases students' engagement, then student achievement increases.

An Expanded Definition of Literacy Education

Just as global societies are redefining themselves, the concept of literacy is undergoing an evolution of its own. Theoretical and technological advances have transformed literacy from a simple dichotomy into a richer, more complex construct. More important than the simple ability to read, literacy now focuses on the ability to use information from a variety of texts and text forms in specific contexts. This focus places the practice of literacy outside as well as inside the place called school.

Communication is more than a matter of words. Indeed. Visual images – the view of the street, the picture in the advertisement, the action on the screen – often convey the larger part of the message. Parents, teachers, and book publishers have long recognized that pictures are important for young children, but only recently has exploration of "the media" – television, film, magazines, and especially the computer screen – been seen as an integral part of the learning continuum.

Many people are confused about literature and literacy. The first definition of literature in the Canadian Oxford Dictionary is "written works, esp. those whose value lies in beauty of language or in emotional effect." Too many parents and teachers regard only novels, poetry, and "literary non-fiction" as reading, and many boys and men think that they are not readers because they don't choose one of those genres.

The thinking that "novel" is the magic word for literacy is unfortunate for many readers. Today, even in Grades 3, 4, and 5, the whole-class novel is the main reading strategy. At least a third to half of a class likely can't handle that text. Yet it is mandatory methodology, chapter by chapter. Is the goal literacy or literature? We need to examine how we can have both. The library can actually help children escape into a more "real" world.

We want our students to work towards independence, to develop into lifelong readers who see texts (on screen and on page) as friendly objects. How can we help students to think carefully about the texts they "read", to become aware of how a text works, so that they can become critical and discerning readers? One answer to meeting the needs of our students is to offer

more options in libraries and in classrooms so that their text selections can become varied, even more challenging. We can show them possibilities, without demeaning their present literacy lives and choices.

As teachers and librarians, we have all experienced the disappointment that comes from a student revealing boredom or dissatisfaction with something we had judged to be a wonderful piece of literature. Finding appropriate and interesting books that represent quality literature for our students is a complicated task, but it is a significant way to help them become critical and creative readers.

Learning to appreciate a particular text is a developmental, lifelong process, dependent on many variables – background, skill, experience, familiarity, life and text connections, purpose, situation, and so on. We need to move towards supporting readers' decisions about the print resources they select – their newspapers, novels, magazines, their work and organizational materials, and their choices of reading for fun and games. We then need to consider in our school and classroom libraries how to increase the options that resources can offer and explore with students how different texts and text forms work- what to look for and what to expect - so that they can make informed choices and select the resources that will give them the most satisfaction.

We need to help young people, regardless of background and ability, to look at their responses to different texts, to reflect on why they feel as they do, and to consider the author's role in determining how they respond to the ideas and words in texts. Not surprisingly, reading the texts we want or need to read in search of deeper understanding may be the answer to many of the common problems teachers and parents face in opening doors and windows for their young people.

The literature canon for youngsters has not altered much over the last 50 years. The same novels are used throughout most school districts in North America, without much awareness of equity or gender issues. The books are often read and analyzed chapter by chapter, with too little attention paid to the impact of choice and the teaching strategy on the future literacy lives of the students.

How can a text full of long, uninterrupted print passages compete with the visual and aural sensations that beat upon young people and catch them in the media net? Young people are inundated with so many texts from television, cereal boxes, advertising, and computer games. Can we draw on the range of powerful literature we have access to for motivating reluctant readers to explore the ideas, the other worlds, the information, the surprises, the sense of imagination contained inside the very books they too often disdain? What if these readers could find themselves engaged in a book they couldn't put down? What would change in their reading lives? Would they forget their reading problems and simply read?

Many of today's young readers enjoy reading a different type of text from those we are most familiar with – the graphic novel. This shouldn't come as a surprise, however, in a world where visuals from television, videos, games, and computers fill so much of our youngsters' time. In an increasingly image-filled culture, this new literacy medium offers alternatives to traditional texts used in schools, while at the same time promoting literacy development. For many of us, comics are tainted as a lesser genre, relegated to childhood's Saturday morning leisure time. But many of today's graphic novels include a complex and art-filled variety of genres, from fiction to biography, social studies and science, representing social, economic, and political themes and topics that readers might not choose in other types of texts. As well, they present

opportunities for incorporating media literacy into the reading program, as students critically examine this word-and-image medium.

Why are we so afraid of comic books? What is it that we find terrifying about them – this art form that I read for five years as a child? In Grade 7, I had the biggest comic book selection in my neighborhood, and my parents never complained. But many teachers (and librarians) are absolutely terrified of comic books. Is it the big words – because they do have big words? Is it the art form that is unfamiliar to us? Well, most of us have read comic books. So, what is the problem?

Somehow, comics are not serious. And we like books or art that is serious. We like fine art; it requires training. We're suspicious of art that doesn't conform to our expectations. Of course, Art Spiegelman's Pulitzer prize-winning graphic novel, *Maus, the Saga of the Holocaust,* is somehow outside this debate. In other countries, like Japan, young men are moving into graphica in a very big way: comic novels, read by middle-class people. On subways. Altering our definition of what a conic is. How, then, do we uncover our own biases? (Libraries were the first to stock graphic texts.)

Being multimodal, graphic texts represent new, contemporary forms of print and visual literacy, and motivate readers to read words and images with significant comprehension. The illustrations and designs support the reading of these stories, pictures, photographs, poems, information selections, posters, and cartoons, as children become readers of all types and formats of texts, in books and on screens, making connections to media experiences in school and at home. These books are highly visual, incorporating art, design, and graphics in support of the printed text. Graphic stories – fiction and non-fiction selections, written and drawn by graphic artists – involve the young readers in texts that represent new contemporary forms of literacy that will motivate them to read words and images with significance.

How can we connect the power of texts that matter to other curriculum areas? One winter, I set out to re-live the lunches of my childhood by cooking a big pot of potato soup. I reached for my gift set of Julia Child's cookbooks to find the recipe – and found myself entranced by her description of the history and romance of this old-fashioned potage. How strange and fitting that even directions for soup can become a literary experience, that words labeled "non-fiction" can draw from me, the reader, a response both cognitive and aesthetic and bring back all those years of comfort food and secure noon hours? Such is the power of writing when writer and reader connect, and torrents of meaning rush back and forth between print and eye. Recently, I overheard a conversation in the grocery store between a couple, where the young man asked the young woman to select a cabbage, because he was going on the Internet that night to find a great recipe. If he's lucky, he may discover the story of cabbage soup.

What is the curriculum if it isn't story? Stories of other times; of people we never knew but want to; of places that no longer exist but in the mind; of fin, fur, and feather; of trees that were here by the thousands and are now all but gone; of volcanoes that wiped away villages; of rivers ten million years old; of strands of genetic information that alter our concept of life; of telescopes that let us took back to the birth of the universe.

When did we forget that everything is a story? (Even the Dairy Bureau of Canada calls its presentation to children *The Story of Milk.*) Was it when we decreed that non-fiction writing be devoid of emotion in order to balance more imaginative "creative" fiction? Did this lead us to drain factual information of excitement and passion by creating curriculum materials that were lifeless?

It makes more sense to see "literature" as a vehicle for making connections to curriculum: a novel of pioneer life as part of the social studies unit, a poem about the mysteries of the deep as an introduction to a science lesson. These linkages help children to form the collage of stimuli and information that surrounds them into a connected learning web. Yet at the heart of the curriculum, I prefer to see the very words the experts use: the scientist's appeal for ecological courage on the basis of experimental findings and their implications; the historian's blend of the hardships of pioneer life with the traces of their journeys across the prairies; the sociologist's discussion of urbanization and the charts and figures that illuminate the multicultural complexities of the neighborhood; and the home economists guide to a bowl of soup through a look at a cultural heritage.

There are many jokes about children sitting in libraries, copying long passages from encyclopedias, or parents researching and writing the projects their children are assigned. Our classrooms have come a long way from demanding that projects submitted without our guidance be artistically beautiful creations often relying on parental support. Now, we see them as in-depth research projects that demonstrate the students' high-level learning in both content and process, and that offer them opportunities for teaching others about what they have discovered. If we want students to develop as young writers, it is important to help them set up a system that enables them to experience the earning that grows from a project personally, so that they acquire skills of handling information. While we may assist by providing data, by offering to be interviewed, or by helping to publish the final drafts, the students should have ownership of their work.

Occasions in which students present their inquiries offer opportunities for both oral communication and written and visual demonstrations of the research. I am impressed by the power of overhead transparencies and PowerPoint to prompt students to consider carefully how they will represent their findings. Young investigators may want to distribute a guide sheet for observers to note their learning and to ask further questions. Displays and bulletin boards on screen and on walls let other students benefit from the research.

As processes, reading and writing become tools for student researchers, if their motivation for making an inquiry is strong. Often, classrooms with helpful reading and writing programs forget the difficulties inherent in using a single textbook or the complexities involved in reading information books from the library and the Internet. It is often useful to have the students reflect on their research experiences. They might write about the books or other resources they have read, perhaps discussing new facts they have learned or problems they have experienced while researching.

Why Librarians Love Blackberrys and Books

Books and screens will co-exist for the near future. Book people are strong-willed proponents of the paper-print media, but technology will continue to expand as young people are born wireless. Students will need teachers, librarians, and friends to promote and provide choices to extend and enrich their literacy options with different texts, along with time and places and opportunities for adding new ones to their crowded lives.

The future has already arrived for many teachers and librarians in many schools. E-writing and online texts have changed how we describe and define the reading and writing events that surround our children. Our understandings of literacy are changing, and the skills it requires may not be best represented in current standardized testing. We have models of teachers using

literacy events in their classrooms, with carefully thought-out learning objectives and assessment criteria. We recognize, however, that technological resources are hard to come by and school requirements are having trouble catching up with the changes that our students meet every day. It will take time, but I am amazed how far schools have come in adapting to new technologies.

- **Social networking:** Integrating social networking into classroom events is evidenced in new educational articles and books, alongside a variety of websites. Blogging activities (Google Blog Search, Google Reader, Flickr) are popular in many classrooms and libraries that I have observed. Let us consider what these modes of written discourse will mean to the students' growth as writers.
- **Independent inquiry:** Having students write informative yet reflective texts based on intensive and extensive research will remain important, but inquiry approaches are now being seen as effective modes of promoting thoughtful, cooperative opportunities for intensive and extensive reading and writing, where students choose topics of interest, find their own resources, and write up their data. Moving to this type of activity can increase the reasons in the students' lives for both researching and writing.
- **Streamlined writing tasks:** Computer programs focusing on specific strategies for assisting us as writers can increase motivation and decrease what we may see as drudgery. They allow us to skip tedious operations and let us focus on the composing aspects of our writing. And for students in difficulty as writers, we now have assistive programs that format our work, read our words aloud as we write, offer us revision suggestions, and provide support for writing our ideas in a particular genre.
- **Numerous exemplars:** We have many examples of models and exemplars of student writing, linked to assessment and to suggestions for mini-lessons and specific practice. I recommend that the students examine sets of these samples and find those that match their own levels of competency – computers can now help do this for students.
- **Authoritative assessment:** New assessment methods have given us information about the craft of writing that we lacked before. We now can read a child's written piece and assess the specifics of the student's progress as a writer of this type of text. We know what to look for and what to do if we don't find it in the work – I feel so much more professional in talking to the students and in reporting to the parents.
- **Computer capabilities:** The techniques of cutting and pasting, inserting graphics, downloading maps, drawing and painting with a mouse, formatting, and creating books have brought writing to the fore of student interest. I watched one class spend hours during the week preparing to share their reports: writing their results, revising them when they found new data, add the graphic items to support their written texts – they didn't want to stop their work.
- **Literacy in content areas:** In language arts class, in the library or in the writing workshop, we teach strategies for writing in different genres, for different functions, and with different styles, forms, and formats; however, some of these events could be carried out during other subject times. In secondary schools, many teachers are exploring the literacy functions of the disciplines with the students, helping them become more effective readers and writers as they learn about the content, procedures, or forms used in the particular field of study. As we all become more adept at incorporating literacy strategies in our subject classes, students will gain a much clearer understanding of how language works.
- **Digital interactivity:** For shared writing times, the SMART Board offers interactivity. You can use a laptop connected to the SMART Board to navigate to different sites with a variety of programs and then choose one to incorporate into your interactive class event. Of course, you can use an overhead transparency or a flip chart to promote interactivity, but using

digital power is much more effective in helping children explore, revise, create, and pattern texts. Fifty years ago, Bill Moore, my language arts supervisor, worked with my Grade 7 class using chalkboard and chalk. Yet, so much interaction can be implemented with many more students with the support of technology – and Bill would have been leading the charge into the digital world.

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Transition Literacy in High Schools
A School Model

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Lifelong Learning at LSS

In K-12 classrooms across Canada, the literacy needs of students are based on the curriculum guidelines in each province and on the stated goal of the Canadian government (2002) "to respond to the challenges of the knowledge-based economy."

Public school teachers focus on teaching provincial content or curriculum outcomes to students. Teacher-librarians assist in this endeavor by collaborating with teachers and students in seeking appropriate resources and evaluating the quality of information they find. For students, this means acquiring the necessary literacy skills to use digital or print reference resources, access databases, the Internet, and all formats of multimedia.

Like all students in the Langley School District, students at LSS have grown up with technology available both at home and in the classroom. They are comfortable working on assignments using multiple sources of information and adding their own personal touches using, among others, graphics, sounds and videos. In doing so, they are using different educational tools than those available to their parents and teachers when it comes to schoolwork.

Technology in schools has changed the perception of students and their understanding of literacy. The written word is still the predominant literacy but the concept of new literacies is becoming what Beane (2003) refers to as "an integral part of today's society."

Four keys educational concepts are in place at LSS for successful integration of lifelong literacy skills:

1. Integration of Multiple Literacies in the work habits of students
2. Information Literacy Models of Inquiry to assist in their research
3. Professional development for teachers and the teacher-librarian
4. Transition Literacy, which takes into account the interconnectedness of literacy in post secondary education and the students prior educational experience.

Literacy Frameworks

Federal and provincial governments, having invested substantial resources in technology in public schools, see teaching information literacy skills as a foundation for lifelong learning.

McKenzie (1999) recognized this fact and recommended that school districts move beyond, the technology in place, to literacy. "Showing students how to ask questions and interpret the information that they find is the key to success and a necessary step in preparing for the future." McKenzie saw little evidence that having computers in schools was helpful to students.

Using the computers to teach literacy skills is proving useful and necessary for student learning so the emphasis should be on teaching strategies and developing a curriculum that uses new literacies.

"If we teach students the right information and literacy skills, they should have the power to actually improve the depth and quality and originality of their thinking because of the richness of the resources they will be able to mine." (McKenzie 1999)

Teacher-Librarians and Information Literacy

Canadian Information Literacy standards for teacher-librarians, written in 2003, establish a strong role for school libraries in helping students learn these research skills. Recent studies (Haycock, 2003; Lance, 2001; Lonsdale, 2003) show that through effective collaboration with classroom teachers, that teacher-librarians play a key role in student literacy achievement in both traditional and new literacies. The role of the teacher-librarian has grown beyond the traditional role of a manager and organizer of books to a direct participant in teaching information skills.

Why Transition Literacy?

Transition is the process a person goes through when their lives take them into new directions. It could be going from elementary school to high school, high school to post-secondary institutions, leaving school for the workforce and leaving the workforce to retire. Each of these phases in our lives requires new knowledge and new literacies to adapt to changing circumstances. Transitions are not always an easy step and it can take time before a person can adapt to his/her new surroundings.

Like the career prep teachers, councilors and teacher -ibrarians in high school, academic librarians work to assist students in understanding the requirements needed to successfully navigate academia. They educate incoming students in understanding and using the services offered in a college or university library. My aim in implementing this transition process at LSS is educating the students about academic or research libraries before they leave high school so they can feel comfortable using the services when they arrive on campus.

Transition literacy in high school adds another literacy skill for students (Information Literacy, Critical Literacy, Technological Literacy, Creative Presentation Literacy, and Ethics of Information Use) to become lifelong learners. The Transition Literacy Program at LSS seeks to provide information and resources to its graduating classes about post-secondary research practices and by clarifying the challenges and knowledge base required of high school seniors to be successful graduates in college or university.

By combining the experience of the teacher-librarian in high school and academic librarians at a community college or a university, the aim of the Transition Literacy Program is to

improve the learning experience of new post-secondary students and the understanding of library services offered in these institutions.

Graduating at LSS in 2009 means students need to have the skills to use existing technology and have knowledge of the multiple literacies skills needed to continue their studies or enter the workforce. The teachers and the teacher-librarian at LSS are committed to helping graduate students acquire the skills that can help them adapt to new technologies and multi-task using an array of tools at their disposal at LSS and as life-long learners.

What are Multiple Literacies?

Multiple Litreracies require students to have the ability to read, analyze, interpret, evaluate, and produce communication in a variety of textual environments and multiple digital tools.

What Literacy Skills are taught at LSS?

At LSS, we emphasize multiple literacy skills from grades 9 to 12. These literacies were based on a model from a course presented at the University of PEI with Dr. Ray Doiron and Dr. Marlene Asselin in 2003. They are:

Creative Presentation Skills: Students at LSS must learn to go beyond the traditional project report to creative ways of preparing and sharing newly developed knowledge by using a combination of slide shows, multimedia tools, website design, CD and DVD productions.

Critical Literacy: The focus on how and in whose interests the information found are used. The LSS students need to know how to determine the authenticity and reliability of sources found in print and in digital format.

Ethics of Information Use: Students at LSS must understand the values associated with the fair and honest use of information they find in print and in digital format. They need to represent the work of authors accurately and appropriately. They need to have a respect for the confidentiality and intellectual property of authors and understand the illegal uses of knowledge and information.

Information Literacy: Understanding how to find resources and sources that can help the student at LSS organize and structure information, synthesize new knowledge with note taking and finally using and presenting the new knowledge.

Technological Competencies: Students at LSS must learn a complex set of effective and efficient search skills for print and online resources. They must acquire word processing skills fully integrated into the writing process. They must have communication skills using email, text messaging and on-line networks. They must also learn integrating traditional and new media formats into their writing and publishing activities.

And at LSS we also introduce another Literacy skill: Transition Literacy

The Transition Literacy Program: Transition Literacy seeks to provide information about post-secondary research practices and by clarifying the challenges that LSS students will need to be successful graduates in college or university. By combining the experience of the teacher-librarian at LSS and academic librarians in post-secondary institutions, the aim of

Transition Literacy is to improve the quality of education and library services for students at LSS when they start the next step in their educations.

Transition literacy is not a new concept but it is gaining momentum as a concept in schools and universities as students need to be ready to enter the next step in their academic life in an information rich environment. A group of academic librarians and a teacher-librarian in Ontario (Bryant, Farnum, Newman, Williams and Yanofsky) presented their work on transitions at the OLA Superconference in Ontario in 2008.

Selected Steps

To successfully integrate Transition Literacy at LSS, graduating students needed to understand some of the basic components of post-secondary education.

- **New knowledge.** Graduating students need to be aware that they are changing library classification systems from the Dewey decimal classification used in elementary and secondary school libraries to the Library of Congress classification used in college and university libraries.
- **New Resources.** Colleges and universities offer access to numerous databases and search tools that are not always available to public school students. Knowledge of these databases and search tools should enhance the research experience of new students from the start rather than long term as they progress in their studies.
- **Web 2.0 technology tools.** The collaborative nature of post-secondary education requires students to use new tools like blogs or wikis to participate in the ongoing discourse and participation of students in the class. Other Web 2.0 tools will assist students in creating and sharing their projects online rather than through saving their projects on CD's or flash drives.
- **Learning how to search for information and writing papers.** A key component of an academic library's strategic plan is to change the way students view libraries, and to position the library's program in a way that is meaningful to them. New students have to understand the importance of information literacy skills in their own lives. They're more likely to do so if they understand how it relates to their immediate and future success. Assignments at college and university require in-depth research skills. Academic librarians offer numerous services from documentation, FAQ's, library instruction classes, tutorials, links to real-time library assistance, and government programs like the B.C Ministry of Education's AskAway.

1. DDC to LCC

The first step in teaching Transition Literacy at LSS is one that is often overlooked by graduating students and that is the cataloguing classification used in post secondary libraries. Students in BC elementary, middle and high schools use the Dewey decimal classification that is quite different from the Library of Congress Classification used in colleges and universities. LCC is used in bigger libraries because it has more classes, subclasses and subdivisions. Unlike DDC, LCC is not based on a decimal system based on numbers. It has 21 major classes, and is based an alphanumeric representation for classes.

> A - General Works B - Philosophy, Psychology, Religion C - Auxiliary Sciences of history D - History (general) and History of EuropeE - History: America F - History: America G - Geography, Anthropology, Recreation H - Social Sciences J - Political

Science K – Law L – Education M - Music and Books on Music N - Fine Arts P - Language and Literature Q – Science R – Medicine S – Agriculture T – Technology U - Military Science V - Naval Science Z - Bibliography, Library Science, Information Resources (general)

As you can see, the first subdivisions for the 21 major classes are also indicated with capital letter. (E.g. Fine Arts)

N Fine Arts (this is the main class) NA Visual Arts (General) NB Sculpture NC Drawing; Design; Illustration ND Painting NE Print Media NK Decorative Arts; Applied Arts NX Arts in general

Principal subdivisions are in turn subdivided by adding numbers to the letters. This dramatically expands subject specificity.

For example:

NB Sculpture (this is a principle subdivision)

1.50 General 60-1115 History 1160-1195 Design and techniques 1208-1270 Special materials, etc.

If a student searches for a book on Hawaii in the library at LSS, he or she could find it classified as 996.9. If the same student searches for the same book in a library at Kwantlen Polytechnic University in Langley, it could be classified as DU 620. Knowing that the classification systems are different before they graduate would be useful in searching for resources next fall.

2. Search Tools in post-secondary libraries

Most post-secondary institutions in BC offer many research and reference tools not always available in K-12 schools. Taking a look at the new Kwantlen Polytechnic University (KPU) website in Langley we find these resources:

- Library Catalogue: A web-based union catalogue available to students online from any computer on campus and off campus. http://webcat.kwantlen.ca:8080/uhtbin/cgisirsi/0/SURREY/0/60/502/X
- Course Reserves: Students can search for books reserved for specific classes. http://webcat.kwantlen.ca:8080/uhtbin/cgisirsi/0/SURREY/0/36/485/X/BLASTOFF
- Article Indexes: KPU Libraries offer more than 70 databases for students to work on their research. Students in high school rely on digital references for doing their research. Each website they find requires that they evaluate the content to see if it is suitable for use. The databases accessible to students at KPU have been organized by reputable organizations and offer a wealth of information to students that have already been evaluated. http://www.kwantlen.ca/library/articles/articlesfront.html
- Journal Titles: KPU libraries offer access to hundreds of professional journals to assist students in their research divided into the following categories:
  1. Anthropology 2. Biology 3. Business 4. Chemistry 5. Communication 6. Computer Science 7. Criminology 8. Education 9. English 10. Fashion Design

11. Fine Arts 12. French 13. Geography 14. Graphic Design 15. Health 16. History 17. Humanities 18. Interior Design 19. Kinesiology 20. Linguistics 21. Mathematics 22. Medicine 23. Music 24. Philosophy 25. Physics 26. Politics 27. Psychology 28. Religion 29. Resource & Environment 30. Sociology 31. Statistics 32. Women Studies

http://cufts2.lib.sfu.ca/CJDB/BSKC/browse

- Subject Guides: KPU libraries offers subject guides in 45 categories. Resources are available online as well as selected web sites in a variety of disciplines. http://www.kwantlen.ca/library/internet/internetmain.html

- KPU Library Tutorials: KPU libraries offer tutorials in:
  - Library Research
  - Library basics
  - Term paper research
  - Internet searching
  - Library anxiety – Tips for overcoming it
  - Library Research FAQ's
  - Information Literacy and Research skills
  - Citing your resources
  - APA Citation Style
  - MLA Citation Style
  - Turabian Citation Style
  - Other Library catalogues
  - Other Colleges and Universities

- Guides and Help sheets
  - Using our Online Catalogue
  - Using our Article Indexes
  - Quick guides to Article Indexes
  - Library Research Tutorials including our Web tutorial
  - Citation Style Guides
  - Guides to our Print Collection
  - Other Library Catalogues
  - Other Colleges and Universities using the Online Catalogue
  - Finding Books
  - Finding Videos
  - Finding Reserves
  - Find Out my Pin
  - Requesting a Kwantlen Book
  - Requesting a Kwantlen Periodical
  - Requesting a Kwantlen Video
  - Requesting a non-Kwantlen Video
  - Requesting inter-library loans online
  - Viewing your Record
  - Accessing eBooks from NetLibrary
  - Renewing Books
  - Accessing Electronic Reserves

3. New tools for learning: Web 2.0

Professors and instructors at colleges and universities are using new web-based tools that complement their teaching and coursework such as blogs, wikis, and other social software (FaceBook, ning's) and support the creation of online learning communities.

Blogging

The journal format associated with online Blogs encourages students to record their thinking online and facilitates critical feedback by letting professors, instructors, students, peers and a wider audience if needed, to add comments and interact in discussions.

Wikis

Wikis let students and professors connect, discuss, share and create online as a community. They can set the agenda for the course though a digital platform where everyone can participate in the process.

Social Networking

Social networking lets students and professors create academic and personal profiles that are used to share information and keep in contact.

Other Web 2.0 Tools

Rather than saving their projects and working with one computer at home or a laptop, students, professors and instructors will be able to save resources, bookmarks, presentations and documents online and retrieve them from any computer at college or university. I have posted examples of Web 2.0 applications that demonstrate where technology is heading in education and can prove useful for students at LSS moving on to post secondary institutions.

4. Learning to search - Writing in a Digital Age

Colleges and universities have different expectations and requirements of the assignments, papers and essays that students hand in.

Firstly, on average, the length is longer than most high school assignments and professors and instructors expect that students' not only use digital resources but also books, professional journals, databases, and any other print, digital, audio or video resources that can used in their presentations or work handed in.

To help develop their search skills at LSS, I subscribed to Credo Reference, a database service that offers access to over 380 interconnected reference tools. They have varying degrees of content to choose from and at LSS we chose 100 reference titles for the students to use in their research.

Secondly, students at LSS need to understand the central role of writing in critical thinking on post-secondary campuses. They also need to understand the emphasis on collective and collaborative writing through blogs, wikis and other social software tools.

Thirdly, students at LSS need to be aware that positive results for their work post-secondary institutions depends on their ability to include original writings and ideas based on new knowledge that they learn, not simply a presentation of someone else's writings.

Many university and college professors and instructors post their requirements and grading criteria online and students can also find writing and style guides available for their perusal.

For the Transition Literacy program at LSS, I used several examples of course requirements, grading criteria and writing styles that are posted online at universities and colleges across Canada. It proved to be an eye opener to many students, especially the fact that they are required to look for various sources of information and resource formats for their projects and assignments.

Starting in the spring of 2009, SD 35, as well as all other districts in B.C., had free access to databases from the ERAC consortium.

They include:

From World Book

1. World Book for Kids – For elementary
2. World Book Student – For middle and secondary schools
3. World Book Advanced – For secondary schools and beyond
4. World Book Découverte – French Version

From Ebsco Host

1. Consumer Health Complete
2. Kids Search – Elementary and middle schools
3. Canadian Student Research – middle and secondary students
4. Canadian Research Centre
5. Novelist K-8 – Books and author information for elementary and middle schools
6. Novelist Books and author information for middle and secondary students
7. The B.C. Encyclopedia
8. Gale Virtual Reference Library: Art & Humanities, Alternative Energy, Ancient Civilizations, 21st Century Writers, Canadian Parliamentary Guide, Drugs and Addictive Substances, Animal Life, Industrial Revolution, Canadian Provinces, Nutrition, Governments of the World, and the History of Ideas
9. Infotrac CPI.Q. (Canadian Periodicals Index Quarterly) is a database of more than 1300 Canadian periodicals in English and French.
10. The Canadian Encyclopedia
11. The Youth Encyclopedia of Canada – For elementary and middle schools
12. The Encyclopedia of Music in Canada
13. Maclean's: A selection of articles since 1995.
14. The Atlas of Canada: Maps and facts.

Infotrac also offer two databases separately through Gale databases

1. Gale Virtual Reference Library: Art & Humanities, Alternative Energy, Ancient Civilizations, 21st Century Writers, Canadian Parliamentary Guide, Drugs and Addictive Substances, Animal Life, Industrial Revolution, Canadian Provinces, Nutrition, Governments of the World, and the History of Ideas
2. Infotrac CPI.Q. (Canadian Periodicals Index Quarterly) is a database of more than 1300 Canadian periodicals in English and French.

Timeline

Fall of 2007

To get the Transition Literacy Program started at LSS, I met with the PAC parents at the school in September and outlined what we were hoping to do. With their approval, I then met with the teachers concerned, to work out a time frame and collaboration schedule, so that we could all work at a successful implementation of the program.

In November of 2007, I presented a document to the school administration explaining what we were doing and who was working in collaboration in the Transition Literacy Program in the school.

I contacted a local academic librarian to request information on the services offered at their university.

Spring 2008

After several meetings with the grade 12 English teachers, we worked out a schedule of three classes when the senior students would be coming to the library to work specifically on Transition Literacy Skills. The classes were scheduled for March and April 2008. The classes were well attended.

One other high school in Langley expressed interest in implementing a Transition Literacy program so we shared resources.

Fall of 2008 and Spring 2009

Meeting with graduate classes in session 1 – First meeting is October, second presentation in February 2009 – Credo Reference - Literacy issues + Web 2.0 - Third presentation, May 2009 – Writing research papers

Fall of 2009 and Spring 2010

Meeting with graduate classes in session 1 – First meeting is October, second presentation will be at the end of February 2010 – ERAC and Infotrac databases- Literacy issues + Web 2.0 - Third presentation will be in May 2010 – Writing research papers

Creating a Webspace

To reinforce the lessons learned and offer resources and sources of information, I upgraded the LSS library website to assist students with their projects and assignments.

Introducing Databases

We introduced Credo Reference in the spring of 2009 as part of the ongoing Transition Literacy Program. Lack of funds and the introduction of District access to databases meant that we did not renew our subscription to Credo Reference for the fall of 2009.

Collaboration

One of the important aspects of any successful program is collaboration and at LSS all the stakeholders in this program were enthusiastic participants in its implementation. I have shared my experience and resources with the other teacher librarians in the district and look forward to the program being expanded.

Teacher Librarians and chronic underfunding in school libraries

The eventual success of the Transition Literacy program is undetermined due to our financial situation. Like many other school districts in BC, SD 35 is experiencing a substantial budget deficit ($14.2 million dollars as of March 2010). The chronic underfunding has already affected the school library programs in Langley.

Based on district numbers (Fall 2009)

- 22/41 - 54% of school libraries in Langley have no teacher librarian (a majority are elementary schools)
- 6/41 - 15% of school libraries in Langley have a half-time teacher librarian or less.
- 4/41 - 10% of school libraries in Langley have more than .6 and less than a full time teacher librarian.
- 9/41 - 21% of school libraries in Langley have full time teacher librarians (most are secondary schools)

So less than a third of schools in Langley have teacher librarians, working 3 or more days a week, in the library. This should be seen as a critical time to assess the value of literacy, information literacy and information technology programs in our schools but it will be difficult looking at the deficit in place. Without budget and manpower predictions, it is difficult to determine how many school library programs will survive into the Fall of 2010 but it will be worse than this years numbers.

The Transition Literacy program will continue at LSS but its future as a district program will depend on having teacher librarians in our school libraries.

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The Points About Inquiry, and There are Many

Moira Ekdahl
Liaison Chair,
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It is generally agreed amongst those who contemplate how learning will be transformed in the 21st-Century that students—well, all citizens, really—will need to become more adept, effective, ethical, and critical users of information. What students learn to do with information is likely to last longer than the specifics of the information itself.

Yet, educators continue to present, measure, and expect information in formats that place less value on the learning processes and more value on the content. Caught in the cross-currents of educational debate in a socio-cultural environment where it is expected—no, mandated—they may gather quantitative data at regular intervals on products of student learning, compare these to pre-determined standards throughout a term, and thus document "coverage" of multiple bulleted curriculum learning outcomes. Continued adherence to this traditional approach to the construction and assessment of learning may be at the expense of learner empowerment and independence acquired with more effective, meaningful, and lasting engagement in the complex and multiple opportunities for meaning-making afforded by inquiry-based learning.

Educators enable students to be more *information literate*—able to access, retrieve, process, use, communicate, and reflect upon the information that emerges from their learning processes—as they engage in multiple and complex tasks in inquiry-based learning contexts. Educators, deeply engaged within the dynamics of a classroom charged with changing information-rich learning, learn how learning takes place and how their own teaching and students' learning in relation to knowledge changes; they:

- move to the side and work to guide or "scaffold" the learning
- provide feedback that empowers students to move more deeply into the learning
- encourage students to have more authority over their own knowledge and inquiry
- are actively engaged in learning, assessing, and teaching
- ensure new learning takes place in active, collaborative, and social contexts, real or virtual.

For teacher-librarians, information literacy:

- has often been constructed as a set of skills linked within learning processes to be embedded in content
- is often shown as a "scope-and-sequence" that parallels grades of the formal school curriculum

- has been a movement led by Carol Kuhlthau, Barbara Stripling, and others
- has been packaged as Big6, Research Quest, Information Power, and more
- is not and cannot be a separate "library skills" curriculum; information skills cannot be learned in isolation of the content
- is not an optional add-in as the ICT curriculum was intended to be
- is not widely embraced by school communities
- has not received official status or recognition in BC, aside from the adoption of the Research Quest model 10 years ago
- yet, is more important now than ever before.

In BC, teacher-librarians have a long history of working for the information literacy agenda:

- *Developing Independent Learners: The Role of the School Library Resource Centre*, 1991, Ministry of Education (subsequently delisted)
- The Coquitlam *Learning Outcomes for Information Literacy*, derived from BC IRPs (Bens et al.) which were included in *Developing Independent Learners*
- *Achieving Information Literacy* standards, published in 2003 by CASL (formerly CSLA/ATLC)
- *The BCTLA Research Quest model*, one of only two Ministry of Education documents, that has provided direction for our work (now also delisted).

For years, teacher-librarians in BC believed it would be simply a matter of time before the BCTLA Research Quest model, adopted by the BC Ministry of Education in 2001, would be shared with, and understood by, our teacher-colleagues as the provincial model for working with students and teacher-librarians to achieve important common goals for information literacy and independent learning. The "adopted model" would enable teacher-librarians in their work; teachers would bring students to the school library ready to learn to *Focus, Find and Filter, Work with Information, Communicate*, and *Reflect*. Instruction using the five-step linear sequential model would begin during the intermediate years and be reinforced until students could, by graduation, apply it as independent learners.

All that remains of the Research Quest model on the Ministry website are a few brief references without explanation. Like so much smoke and mirrors, the long-awaited model was adopted and then was gone. Try Google and you find that the term *research quest* has been adopted into an educational application for video games that, for engagement, far outstrips the uses teacher-librarians had so long anticipated.

Members of the BCTLA Information Literacy Task Force recognized that the learning-as-process Research Quest model hadn't worked. They agreed: it was time to move on. While information literacy is conceptually significant, as important for learning as reading is foundational for all other aspects of literacy and literacies, teachers do not really "get" it; students need to be supported and scaffolded as they move in multiple ways and modes through vast reams of information; they make sense of and transform information into new meaning, forms of expression and thinking, and can do so independently if they are supported just at the times they need it. New ways of learning, changed dramatically by technology, have made one thing crystal clear: lest we get left behind, it is time to adjust our teaching.

There are the AHA! moments in any learning project that shift the engagement factor for participants and significantly affect the project. For the Task Force, one of those moments came at a summer conference in Vancouver. Keynote presenter James Henri, president of the IASL and a man with a penchant for provocative commentary, often challenges long-held tenets of school librarianship. *Just exactly how much ground do you think we have gained,* he asked, *in the struggle to put information literacy onto the agenda of schools?* Teacher-librarians in Vancouver still cite James; every so often, one will be overheard saying to another, "It's like when James told us, ...". James told us, "*We went astray when we told ourselves it was our job to work with students; it isn't. We need to work with teachers ... We need to meet teachers in curriculum.*"

As James gave voice to the unthinkable notion that pitching information literacy isn't working all that well for teacher-librarians, a collective sigh of relief was heard in the school library that hot August afternoon. For each person in the room, the sense of failure to make this information literacy thing a shared agenda item in the school was exposed and then released. Who doesn't recall a colleague's glazed-over eyes, or the ones who simply had to dash, or the stammering apologetic ones who hoped they could bring in students to look for content (and get caught up on backlogged marking, as they really need to cover the curriculum)? Or how about the school staff meeting and professional development agendas always too full to include information literacy, never a top choice for collective professional consideration. What was it that our colleagues couldn't stand to hear, or couldn't get their heads around, and why? And for teacher-librarians, James' question also provided a chance to re-examine why, at the same time, we also couldn't simply agree to meet our colleagues on their terms, that is, by simply introducing the resources and taking on the Works Cited piece at the end. There was still a lot of work to do but it was also time to cede some ground.

Prior to the "Henri Intervention", the Task Force had been pulling relevant intended learning outcomes from provincial and other curriculum documents, sorting them into long and messy lists of skills in a "cubic model" that featured:

- three *strands* (3Rs, Reading, Research, and Resources)
- four learning *dimensions* (the student as information seeker, as information processor, as communicator, and as reflective learner)
- four *benchmarks* identifying what students should be able to do by the end of grade 3, 7, 10, and 12; the focus at each benchmark was to build on all previous skills, and thus, to enhance capacity for independent and lifelong learning.
- *foundations* built of the strands, dimensions, and benchmarks such that students had learned everything needed for practicing the complex processes for independent inquiry in grades 11 and 12.

Borrowing from notions of "backwards design" with "the end in mind" (Wiggins & McTighe), the Task Force also asked BC post-secondary education librarians (Ball & Power) to survey colleagues for what were perceived as the most common academic research problems faced by first-year students. *Are Grade 12 graduates of BC schools able to demonstrate critical thinking skills and to engage in independent inquiry? What are the ten things first-year students need to know how to do better if they are to succeed with the demands of academic research?*

BC students, according to the survey results, needed to know more about:

- how to find a book
- how to find books by author or by topic
- how to select and use databases
- what a journal is and how it differs from a book
- how to paraphrase
- how to evaluate sources critically
- why to write the citation for the quotation being incorporated into a paper
- what plagiarism is
- how to write a research question and a thesis statement
- how and who to ask for help.

The Ontario Confederation of University Faculty Associations simultaneously released the results of their online survey of 2,000 of 15,000 faculty members including academic librarians; first-year students' research and internet-seeking behaviours were found to be going downhill rapidly. What were these students doing to make that impression? They were:

- avoiding databases in favour of Google as the only search tool of value
- using Wikipedia as a citable academic source
- not knowing how to find a book or even how to ask for help
- providing evidence of poorer skills than three years earlier.

What might be the causes of this decline? Faculty had speculated, amongst other things (Rushowy), there was:

- a sense of entitlement or "attitude issues"
- under-resourcing in the public secondary school system
- overvaluing of leisure and a declining work ethic.

While BC's post-secondary education librarians were not asked to identify possible causes of the state of student information literacy skills, it is true that chronic underfunding of public education has had an impact on teacher-librarian staffing and thus on the capacity of BC's school library programs and on professional and curricular support for promoting initiatives like teaching for information literacy.

To further contextualise the work of the Task Force, the American Association of School Librarians (AASL) published its *Standards for the 21st-Century Learner* and *The Standards in Action* describing learning in terms of skills, attitudes, and responsibilities in 2009:

> Learning in the twenty-first century has taken on new dimensions with the exponential expansion of information, ever-changing tools, increasing digitization of text, and heightened demands for critical and creative thinking, communication, and collaborative problem solving ... All learners must be able to access high-quality

information from diverse perspectives, make sense of it to draw their own conclusions or create new knowledge, and share their knowledge with others.

Essential to acquiring these standards are educators who are teaching for and developing their own skills in and understandings about:

- *literacy*, traditionally reading, and also the multi-literacies so students acquire skills to decode "text" or meaning from different print, digital, media, visual, cultural, and other formats.
- *inquiry and critical thinking* so students can move developmentally along a continuum towards independent learning by asking good questions and then finding, reading, evaluating, and making sense of appropriate resources and using them effectively to share answers.
- *technology*, integrated with teaching and learning to ensure equitable physical and intellectual access, so that all students are better prepared for learning, working, and living, more broadly in social and global contexts.
- *assessment* so that students are able to manage their own learning in the information-rich environments of school, life, and work, by engaging in and receiving reflective feedback. Students need to know what they know, what they need to know, what they need to do better, who to ask, and how to refine or revise or re-direct their own and others' inquiries.
- *social learning and learning to be socially responsible* including collaborative working relationships where learning is active and process-driven, so that students expect they and their team members, real and/or virtual, will know how to access, use, and create information in responsible, respectful, equitable, lawful, and appropriate ways. They need to be aware of others' rights.

The Task Force wholly embraced the principles that underpin the AASL Standards which they agreed had moved away from traditional notions of information literacy and concepts such as "scope-and-sequence"; included the multi-literacies and technology; were benchmarked by years to enable flexibility; and were best taught:

- with teachers working collaboratively with teacher-librarians
- in the context of curriculum
- within an inquiry model
- with multiple resources
- in a supportive environment that exemplifies equitable access
- with guidance, as required, in the form of direct instruction or scaffolding
- in conjunction with assessment rubrics that include process as well as content, skills and content goals, self- and peer-assessment.

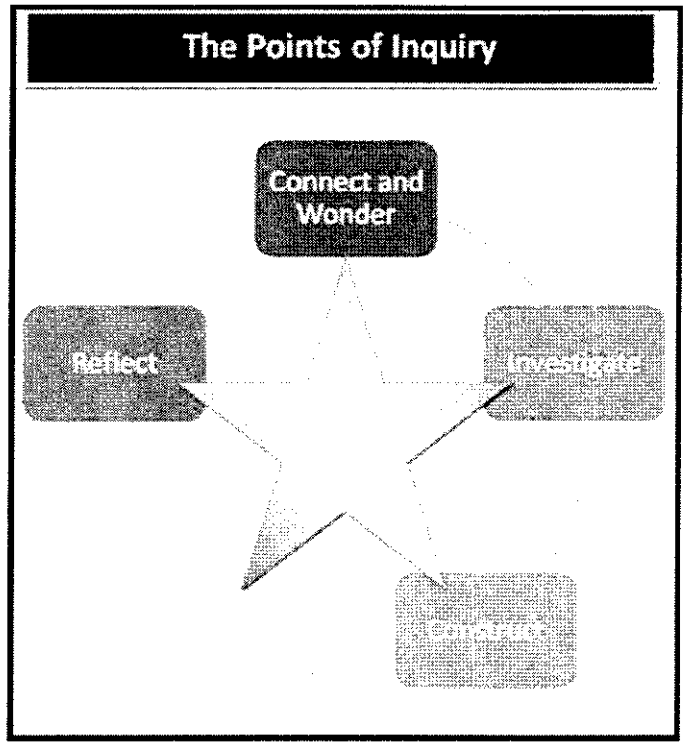
One more AHA! found its way into the Task Force's thinking about teaching and learning for information literacy in BC classrooms and school libraries. Collaborative inquiry-based learning projects with students and with educators must always leave room for serendipity and keep an eye out for the unintended learning outcomes. Two members of the Task Force were also involved with a group of Vancouver teacher-librarians completing a four-month long district collaborative

learning opportunity; it was led by trained facilitators and constructed, using the teacher inquiry model, to put regular group conversations and reflections about practice on top of collaborative inquiry-based professional learning. How perfect the teacher-librarians felt for the task! They knew how inquiry worked. The teacher-librarian inquiry question was, *How can we, as a professional learning community, support teacher-librarians in implementing exemplary school library programs in our schools?* The group re-designed a mentoring model, scripted and shot a film of what *exemplary* looks like, built a wiki of tools and a record of the teacher-librarian inquiry, as well as talked about various readings.

In the second-to-last meeting, one of the facilitators brought an article for discussion: Barbara Stripling's "Using Inquiry to Explode Myths About Learning and Libraries". Stripling's writing has a crystal-clear, formulaically organized, textual structure, as if written from a graphic organizer. What she described included much that made sense; it:

- used active verbs that were clear, concrete, and simple (no more Find, Focus, Filter) and that resonated with language of reading as much as with research
- allowed for messiness and recursivity by allowing movement anywhere, on reflection, at various points in the process
- began and was infused with literacy and critical thinking
- was cognitively manageable for all ages of students at five "points"
- included technology as a tool
- called for reflection at every point
- identified reading for deep understanding as inquiry
- could be used from Kindergarten to Grade 12.

There was no cycle that implied progression, no linear, lock-step sequential model that implied everyone moved in the same way and at the same time; just inquiry for deep understanding and student empowerment by learning to learn on their own. The textual framework inspired a graphic organizer and the conceptual design of *The Points of Inquiry* model:



This model was designed and adapted, with permission, from a reading of
Barbara Stripling's Inquiry discussion, in
"Using Inquiry to Explode Myths about Learning and Libraries" (CSLA Journal)

Stripling, contacted in New York City where she is Director of Library Services for the New York City Department of Education, was readily agreeable to the visual adaptation: five "points" (not six) and a star within a circle. At Stripling's recommendation, the Task Force then looked at the book, *Curriculum Connections Through The Library* (Stripling & Hughes-Hassell), from which the last pieces of the puzzle in our quest for a new model were extracted.

Every discipline engages in inquiry that is unique but structurally similar, from scientific method to literary appreciation to writing process to historical understanding, as examples. Reading is the key to literacy; it is foundational to all literacy/literacies; it is deeply and increasingly linked to inquiry, as young readers go beyond fluency and decoding to maturing understanding and creation of increasingly complex messages, or from learning to read to reading to learn. Inquiry-based learning includes reading and research. *Resources* are not a separate or third aspect of learning but integral to *reading* and *research* constructed as inquiry.

In summary, the BCTLA Information Literacy Task Force moved, over a period of three years, to deeper understanding of the importance of learners being able to think critically about resources, information, and their own questions; away from information literacy and the search for a right model for research for the BC curriculum to the capacity for drawing new knowledge from an inquiry-based approach to information, reading, and 21st-Century learning. The BCTLA inquiry-based approach, termed *The Points of Inquiry*, is:

- framed by well-established and new understandings about learning including traditional literacy and the multi-literacies
- constructed as a model that works for reading as well as research
- framed by the learners as learning that seeks to explain or find answers to their own questions
- grounded in new and emerging technologies as tools for accessing, using, working with, and presenting information
- built developmentally between benchmarks and added to naturally at transition points in classrooms and in school libraries, in all disciplines, from Kindergarten to Grade 12.

The model no longer puts a focus on information literacy nor does it include a scope-and-sequence of skills. Greater levels of sophistication are built onto what is first learned in Kindergarten (thank you, Mr. Fulghum!). Inquiry enables the designing of learning forwards—developmentally appropriate learning in the earliest years is foundational—and backwards, "with the end in mind", to empower young British Columbians to apply an inquiry approach to lifelong learning.

Acknowledgements

The work of the BCTLA Information Literacy Task Force, as described in this paper, was undertaken by the author Moira Ekdahl, Teacher-Librarian Consultant (Vancouver) and teacher-librarians Michele Farquharson (Vancouver), Julie Robinson (West Vancouver), and Lynn Turner (Terrace), with advice from Heather Daly, Library and Information Coordinator (Coquitlam), over a period of more than three years.

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Voices: Literature Circles in the Learning Commons

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Peel DSB

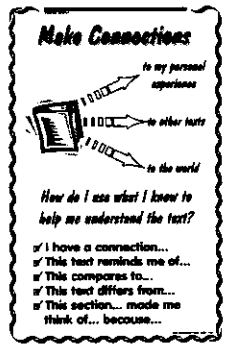
Within a Learning Commons, new relationships are formed between learners, new technologies are realized and utilized, and both students and educators prepare for the future as they learn new ways to learn (OLA, p.3, 2010).

This article describes the collaborative process by which Literature Circles were launched and continued in the Library and Classrooms by the Teacher-Librarian, In School Support Teacher, and 2 classroom teachers (one gifted class and 3 mixed-ability grade 8 classes). Common goals included addressing the needs of learners at diverse reading levels, improving reading comprehension/interest in reading, enhancing communication and increasing meta-cognition of reading strategies. The article describes planning and initiation and includes teacher reflections on logistics, assessment and student achievement.

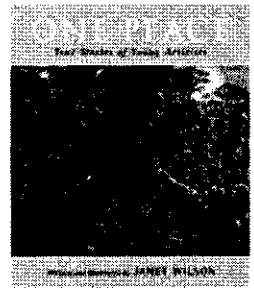
We met as a group to discuss and plan implementation of literature circles. That group quickly became a team as resources, knowledge and experiences of literature circles were shared, debated and discussed. Meshing common goals, theoretical knowledge and practical experience, we refined roles and assessment tools and determined logistics of implementation.

Familiarizing Students With Roles and Strategies

Students became familiarized with roles in 2 double periods in the library, with the teacher-librarian and classroom teachers. In the first period, students were asked to reflect in small groups on prior knowledge of literature circles (*What do you know about literature circles*?), knowledge and use of reading strategies (*Which reading strategies do you know and use to help you understand what you're reading*?), and the connections between the two (*How do you think literature circles and reading strategies are related? How do you think literature circles help you to understand what you're reading*?). Whole class responses were shared and discussed, making connections to Peel District School Board's reading comprehension strategy posters. We observed that students were able to list some strategies and several of the roles but made few references to practicing strategies within roles.



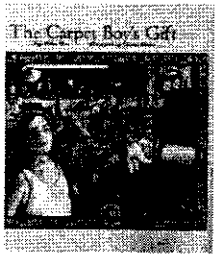
Providing two cloze exercises, differing in degree of difficulty (Wilde, 2000), helped to illuminate the importance of strategy awareness when loss of comprehension occurs. Teachers noted that many more students consistently made references to strategy awareness and use in subsequent role responses.



During the second period, students shared in reading (via document camera and LCD projector) a short non-fiction text from *One Peace: True Stories of Young Activists* (Wilson, 2008) about Craig Kielburger and his initiative, 'Free the Children'. After reading, two roles were introduced:

Word Wizard and Happy Highlighter, emphasizing connections to reading comprehension strategies. Half the class completed the role of Word Wizard and the other half engaged as Happy Highlighters.

For the 3rd and 4th periods, 3 new roles were introduced: Discussion Director, Powerful Profiler and Cool Connector. Following familiarization with the roles, students and teachers again engaged in shared reading of a text—this time a story based on the life of Iqbal Masih, entitled *The Carpet Boy's Gift* by Pegi Deitz Shea. The same procedure was followed as for the first two roles, in terms of sharing and assessment which is explained below.



Encouraging Respectful Sharing and Active Listening

Sentence starters for encouraging respectful dialogue were explained and placed on each table on tent cards prior to role sharing. Responses seemed slightly unnatural at first when using the sentence starters but the prompts proved helpful in terms of encouraging consistent and respectful responses. A checbric completed by teachers and students after sharing aided in providing immediate descriptive feedback for goal setting in terms of norms of communication.

Choosing and Chunking Books

This school library has an abundance of literature circle sets! Using teacher knowledge of student initiative, ability levels, reading interests and social factors, groups of 5 students or less were formed. Each group was given a choice of 5 book sets selected to meet their needs and interests. Students individually rated each book based on readability and interest. After individual evaluation, groups shared their ratings and reached consensus on their choice. This is a highly structured approach, but we were responding to the strengths and needs of our students. For some students, this was their first time engaging in literature circles. With experience, students will be given more autonomy in terms of book and group selection.

Following book choice, groups divided the book into 'chunks' for reading, and decided on roles for each chunk. Giving students responsibility for determining which roles would be prepared by whom and by when encouraged accountability in terms of role completion. Students expressed their disappointment when a group member was not prepared to share, and that member, feeling the weight of that disappointment, would scramble to remedy the situation by completing their role. Essentially, the scheduling ran as such: read, prepare (role), share, reflect. Reading was assigned for homework; sharing and reflecting took place in classrooms and the library.

Having much prior experience with literature circles, the students from the Gifted class noted that literature circles were often too slow moving and not reflective of their reading interests and styles. So, we responded by speeding up the 'read, prepare, share' cycle and allowed them to choose their own groups and books.

Observation and Assessment

Peer, self and teacher assessments of role performance were based on a rubric, and focused on descriptive feedback (How can we improve our performance and enhance our understanding of the text?). Rubrics were written in student friendly language to encourage accurate self assessment and goal setting.

Benefits of providing descriptive feedback and goal setting with students were readily apparent. In students' first group share, a student stated his 'connection' which was something similar to: 'The main character has a friend named Mike and I have a friend named Mike too'.

When asked, "How does that help you to understand the character and the story? How is your friend Mike like the Mike in the story? ". Unable to respond fully to the questions, he indicated an understanding that more would be required of him as part of a group that was relying on him to enhance their understanding of the text, as well as his own. In subsequent meetings, his role responses demonstrated a greater commitment to improving his own understanding of the book, use of strategies and as a contributing member of his group. This also provided an opportunity for teachers to explain to students the difference between assessment *for* learning and assessment *of* learning.

In order to reduce noise levels and increase teacher feedback, 2 groups engaged in literature circle sharing in the library, with T-L observing, while other groups shared in their classroom

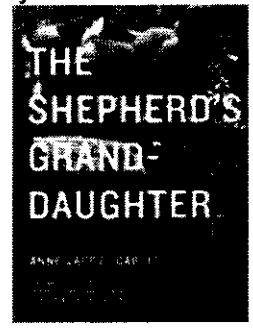
When students understand what is important, they have an opportunity to assess their own efforts in regard to the criteria, and give themselves specific, descriptive feedback about their own learning as they progress. (Davies, 2007, p. 35)

with the classroom and support teachers observing. Teachers took turns observing various groups, which allowed for teacher moderation and greater consistency of assessment and evaluation. It also provided variety of venue and audience for students, which proved to continue the novelty of the experience.

Some students needed more prompting in groups to expand on their thoughts and benefited from jotting down their thoughts from discussions on their role sheet *after* sharing. Our assessment and feedback took into account both oral and written responses in order to focus on enhancing reading comprehension, rather than just written expression of it.

Making connections with Authors and Technology

We were able to incorporate one of the Forest of Reading nominated books *The Shepherd's Granddaughter (Carter, 2009)* and used http://ed.voicethread.com/ for secure online discussions. We arranged for the author to visit and this provided added incentive for reading with understanding. The students valued the opportunity to pose questions derived from circle discussions and receive an answer directly from the source!



We envision incorporating increased use of technology and communication with authors in our future literature circles. The students nearly always completed the reading, which speaks to appropriate book choice—but had not always prepared for roles in written form. This tells us that we need to continue to provide multi-modal options and a variety of authentic audiences.

Some exemplars gathered this year will be shared with students in future literature circles. In addition to sharing written exemplars, we plan to use the document camera to record video exemplars of students engaging in literature circle discussions. Future groups will view the exemplars and use the experience to co-construct criteria for assessment and evaluation tools.

Growing as Learners and Taking Initiative

We were inspired by the depth of response and discussion, and the support students provided each other. Discussions provided opportunities for students to go beyond retell,

grappling with issues presented and making connections to themselves and the world. It was apparent that all benefited from the structure provided by organizers initially, but it was also apparent that as familiarity grew, some students were restricted by organizers in terms of space and creativity. Some of those students took the initiative to use the organizers as a guide and typed or wrote out responses on their own. It is ideal when students know and respond to their learning styles! Students chose culminating tasks to complete and share individually, in partners, or small groups. Tasks provided students opportunities to demonstrate understanding of text using strengths across multiple intelligences. Again, self, peer, and teacher assessment took place, with known criteria. Student demonstration of creativity and understanding was exemplary.	Displays of sharing and culminating tasks in the library pique the interest of other students and teachers. The success of literature circles hinges on collaboration and flexibility. Investing time before, during and after ensures consistency, specificity and success for students. Literature circles can be a hard sell in Intermediate, but teachers envisioning success for students=success. By far, the greatest reward was witnessing growth in learning and the supportive environment in which that occurred—for teachers and students.	**Bibliography** Davies, Anne. (2007). *Making Classroom Assessment Work, Second Ed.* Courtney, BC: Connections Publishing Inc. OSLA. (2010). *Together for learning, School libraries and the emergence of the learning commons, A vision for the 21st century.* Toronto, ON: OLA. Wilde, Sandra. (2000). *Miscue analysis made easy Building on student strengths.* Portsmouth, NH: Heinemann Educational Books. **References** Carter, Anne. (2008). *The Shepherd's Granddaughter.* Toronto, ON: Groundwood Books/House of Anansi Press. Deitz Shea, Pegi. (2006), *The Carpet Boy's Gift.* Gardiner, Maine: Tilbury House Publishers. http://ed.voicethread.com/ Rogers, Warren, & Leochko, Dave. (2002). *Literature circles tools and techniques to inspire reading groups.* Winnipeg, MN: Portage and Main Press. Wilson, Janet. (2008). *One Peace: True Stories of Young Activists.* Victoria, BC: Orca Book Pub. **About the Authors:** **Andrea, Cindy, Amanda and Maureen have over 40 years teaching experience combined and have taught in Peel and abroad, grades K-8. They hope you enjoy this article ☺** **PS—They are now embarking on info circles, and continue to incorporate technology and descriptive feedback.**

Improving Reading Comprehension of Junior Division Students as the Teacher-Librarian An Action Research Study

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I conducted this research for my thesis project as part of my Masters of Education degree. I designed an action research study to investigate how I, as a teacher-librarian, could positively influence literacy development in my school. In my opinion, the teacher-librarian is a potentially excellent literacy resource for students and staff.

I believe that a successful teacher-librarian is an agent of change. As an agent of change, I must keep current with new ways to teach effectively and encourage others to improve their literacy development.

Research Questions

The following questions formed the basis of my study:

1. How can I, as teacher-librarian, help improve reading comprehension levels of junior-aged students in my school?
2. What can I learn about teaching reading strategies to struggling readers?
3. How can I positively influence students' attitudes about reading?
4. How can I incorporate what I learn into my daily practice?

The Role of Teacher-Librarians

There is research to support the idea that trained teacher-librarians can make a difference in students' reading achievement. Ruth Small (2008) found nearly a ten-point difference in grade 4 students' achievement in the English Language Arts test when there was a certified media specialist at the school. Lance (2002) indicated that trained teacher-librarians improve the test scores of students in the United States.

In Ontario, a Queen's University study found a "positive correlation between the presence of a trained full-time teacher-librarian and students' reading enjoyment" (2006, p.8). Recently, Judi Moreillon reported that teacher-librarians can be co-teachers of reading strategies. She outlined how reading strategies are closely related to the research skills we teach in the library (Moreillon, 2008). Her case studies demonstrated how effective team teaching in literacy improved the students' achievement and also captured classroom teachers' and the administrator's attention.

Method

I conducted my action research from October 2007 to April 2008, in the elementary school library in which I am the teacher-librarian. Ten students who received D grades on their June 2007 reading assessments were invited to participate. I investigated my ability to use teaching strategies effectively to improve reading comprehension levels with these Grade 5 students. The group met twice a week to see if I could improve their reading comprehension levels through modelled, shared and guided instruction of the key reading strategies.

I collected a variety of qualitative data about the students' learning. These included reading interest surveys, genre inventories, and anecdotal notes about reading behaviours. I collected a variety of quantitative data about the students' learning during the course of the study. These include students' circulation statistics, CASI (Comprehension Attitude Skills Interests) assessment results, report card grades, over the shoulder miscue analysis results, and school attendance records.

Findings

I noticed the boys shared similar attitudes and patterns when it came to the process of reading. As I collated the data, I discovered that I could categorize these findings about the boys' reading behaviours into six areas.

Students' definition of reading

All of the students in this study described reading as a mechanical activity. When asked what good readers do, the participants stated, "good readers read quickly or read thick books." These students sometimes use reading as a tool to discover things of interest, but they did not connect this to their role as readers in an academic setting.

Reading Attitude

Reading was not a habit for any of the students. All of the boys signed out many books that they were neither interested in nor capable of completing. Many students did not select books that matched their interest or ability at the beginning of the project. Some of the boys preferred to stay with the same familiar series to make reading easier. Reading was considered boring and was an activity forced upon them at school.

Genre

The boys had a limited range of genres from which they chose to read. Fantasy, sports, and humour were among their favourites. Most of the boys stated that they enjoyed non-fiction more than fiction. All but one student increased his appreciation for different genres. These students did not have a lot of experience with a variety of genres when compared to avid readers' experiences.

Fluency

Most of the boys lacked fluency when they read aloud. They read at a rate that was too fast for their level of comprehension. Their reading sounded mechanical and they struggled to retell the main idea. They did not slow down their rate of reading when they encountered difficult words. Often, the boys selected material above their reading comprehension level and then found it very difficult to continue. Abandoning a book is a good idea if it is not the right choice,

but then it is important to find another suitable book. After repeatedly selecting and failing to complete "hard" books, it is easy to see why the boys might want to give up on reading.
Metacognition skills

These students were exposed to a wide range of reading strategies in their school careers, yet when asked to describe how they handle reading challenges they provided simplistic reading strategies. All of the boys claimed that they sound out words. They were unable to articulate how and why they read. The students did not apply many of the reading strategies they had seen in class; they seemed unable to apply these strategies independently.
Behaviours

Many of the boys demonstrated behaviours that made reading difficult. As a group they were quick to get off task when asked to read independently. Absenteeism interfered with the flow of the lessons for two students and all of the students showed a high level of activity and distractibility.

Findings Pertaining to the Research Questions

1. How can I, as teacher-librarian, help improve reading comprehension levels of junior-aged students in my school?

When I compared the students in my study with other Grade 5 students there was not enough evidence to conclude that the students in my group had improved any more than the students who were not part of the study.

2. What can I learn about teaching reading strategies to struggling readers?
Lack of fluency—checking for understanding. During the miscue analysis assessments, some students did not stop to check for understanding when they lost the sense of what they were reading. They read quickly with little expression, and did not adhere to punctuation cues. They did not associate reading with a need to think about what they were reading.
Visualization strategies. The students practiced the visualization technique of "seeing a movie in your head as you read." A few of the boys were able to use this strategy to adjust their reading pace with success.

3. How can I positively influence students' attitudes about reading?
Timely feedback. Four of the students' increased their engagement when they received positive feedback immediately after completing a skill. The boys attempted to write more and speak more in the discussions when given positive feedback. An added negative within the group was that - two other students were negatively affected if they received criticism from other students.

Oral discussion. Seven of the boys were able to complete a written retell of a passage independently after we talked about the passage as a group. This oral discussion or "accountable talk" was a helpful strategy to organize their thoughts about what they read.
Use of technology. Five of the boys showed engagement to initiate and complete tasks when they used technology. Reading along with a CD helped with the comprehension of the material. The engagement level of the boys was also greater when they could use a computer to complete their retells.

Conclusions

The students showed improvement in their reading comprehension during their participation in my study, but the improvement could not be attributed solely to my efforts. Reading requires a wide range of skills, and the students learned a variety of skills from others during the research period.

I developed a definition of the struggling reader. Ineffective readers struggle to understand because of these traits:

- struggling readers have a narrow view of the reading process
- they read within a small range of genres, which limits their interest in reading
- they lack fluency and critical thinking skills that reduce their level of comprehension
- they lack metacognition skills to self-assess how to deal with reading challenges
- the struggle to understand attributes to negative attitudes about reading and avoidance behaviours around reading are observed
- they rarely read for pleasure, which reduces their fluency and comprehension so they do not get the same positive reinforcement, from reading, as avid readers do.

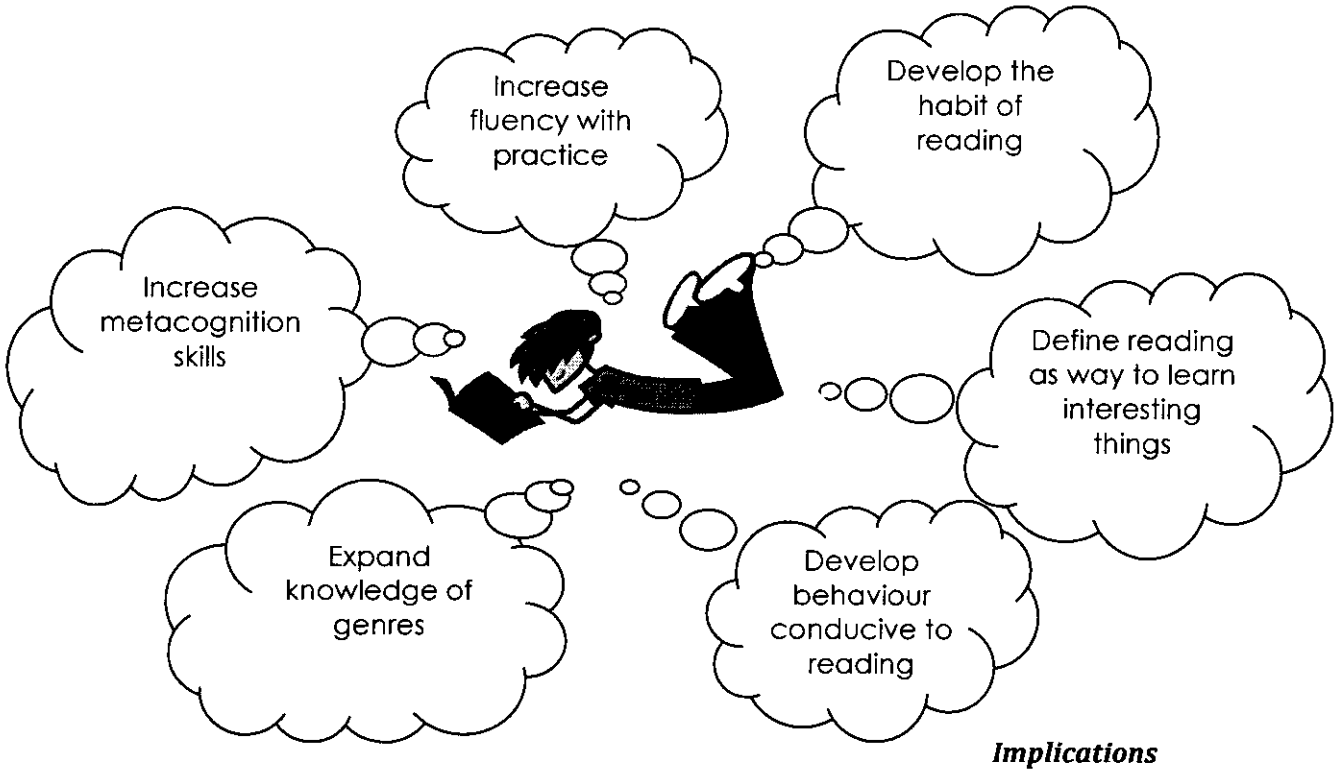
Developing a definition of the struggling reader from the findings was valuable, as it highlighted the areas that I, as the teacher-librarian, should focus on to improve reading achievement.

Teacher-librarians must find ways to reach struggling readers, as they are most at risk of failure. We know from research that the presence of a qualified, full-time teacher-librarian is positively correlated with the enjoyment of reading (People for Education, 2006).

Evaluating my teaching style helped me recognize some ineffective habits, which I can change. I also developed some effective teaching techniques to assist students to improve their reading comprehension. The readers in my study demonstrated more understanding when we incorporated visual cues, used audio formats, and used oral discussions in the lessons. As they engaged with the texts, the students' comprehension of the material improved; this resulted in a positive reading experience. These strategies helped me to influence the students' reading attitudes in a positive way.

My conclusions relate back to this definition as I focused on the six areas required to be an effective reader. I decided to make these six areas of concern into goals for teaching reading. They are stated in Figure A. I will have a positive impact on the reading attitudes of students when I incorporate these goals into my library program planning.

Figure A. Six Goals for Teaching Reading



Implications

How can I incorporate what I learned into my daily practice?

As I learned more about the struggling readers, I developed ways to adapt my lessons to meet their needs. I gained more expertise in the effective way to teach reading strategies, which I will apply to future lessons.

As the teacher-librarian, I make the library a welcoming space that is conducive to reading, and I organize the library so students can find resources independently. I select a variety of formats and genres to complement classroom-reading goals. Although the library is a busy place, it is still a place to browse for books or to ask for reading suggestions.

I provide opportunities for readers to join programs such as the Ontario Library Association's Forest of Reading program, and the Barrie Public Library's Battle of the Book program. For the last three years, I have also organized a "Boyz Read" club in my school for "reluctant boy readers." Participation in these programs is a way to increase encourage students to develop positive reading habits and attitudes. Providing interesting material, at the appropriate reading level, benefits the students in my school, because it gives them opportunities to improve their fluency and comprehension. Thus, I plan to use what I have learned to build upon the vibrancy and efficacy of my library.

Collaboration

The six characteristics of ineffective readers, identified in my study, led me to develop my goals to improve the teaching of reading. I have incorporated these teaching goals when I

developed my four planning priorities. When planning, with my colleagues, we will integrate students' interests, checks for understanding, opportunities to think critically, and time to develop metacognition skills into the lessons (see Figure B). The diagram depicts the four planning priorities for team teaching as jigsaw pieces; they are interconnected and equally important strategies for supporting all readers.

Make it interesting

Discover what students' interests are and find resources to promote their interests. Wilhelm (2009) asked, "If the assignment is not interesting to you as the teacher, then why are you giving it to the students?" When teachers provide carefully planned projects and students become genuinely engaged, their behaviour towards reading improves.

Check for understanding

Take more time with oral explanations and check that students understand the task. Taking more time to prepare the students for what they are about to read is valuable. I will engage in more oral discussions and track more carefully during research classes to ensure that the "quiet" students do not go unnoticed. I will incorporate these strategies into my lessons.

Teach critical thinking skills

Critical thinking is the thoughtful response to what one reads. It is the ability to question and evaluate the authority of the text while reading (Booth, 2008, p.11).

The research process encourages students to think their way through a problem. Sharing in the selection and processing of resources is an excellent way to help students to think deeply about the world around us. I have established a school-wide research model based on the four-step research model from the Ontario School Library Association. This four-step research model incorporates many critical thinking skills.

I want to model the benefits of this research process more. Developing assignments, where students are required to use "higher-thinking skills" will develop effective critical thinking skills.

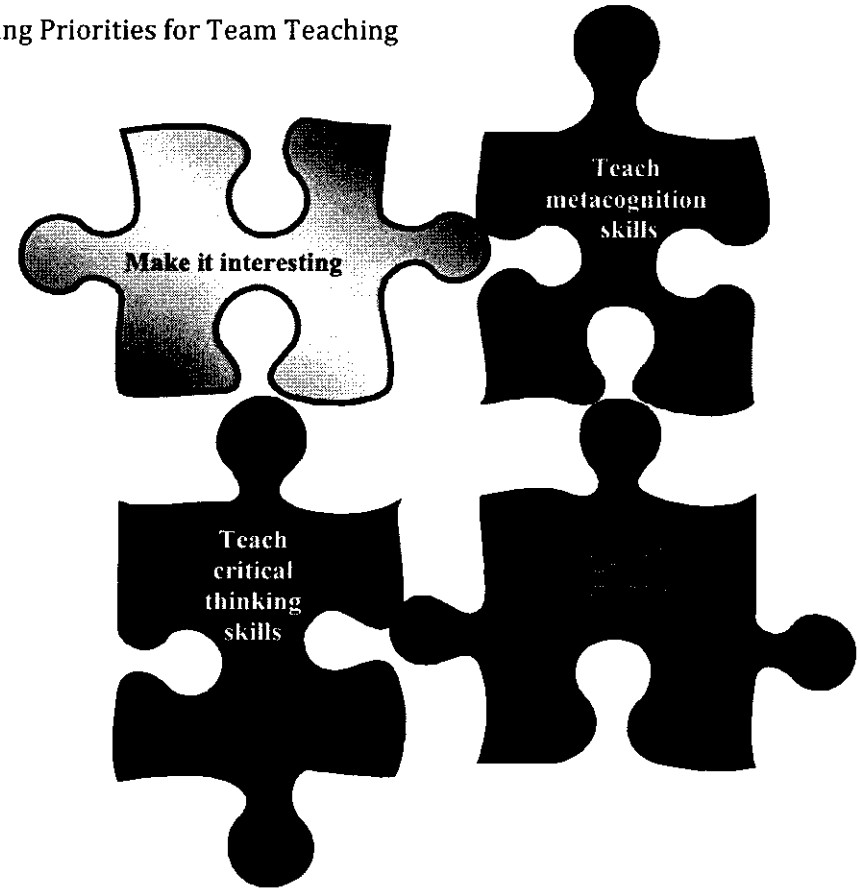
Teach metacognition skills

The ability to self-assess our strengths and weaknesses is fostered by the practice of metacognition skills. Successful readers constantly assess their strategies and have a sense of when they need to adjust their reading rate.

Students need time to self-evaluate the process of their learning, so they can identify where they need to go next in their learning progression. Self- and peer-assessments provide valuable feedback for teachers and students about the value of the learning experience. I will make more time for students to reflect and to assess their strengths and weaknesses when completing a research project.

Klinger, Lee, Stephenson, Deluca, and Luu (2009) observed teacher-librarians in exemplary schools to identify and define possible best practices for others. "The most successful programs were characterized by teacher-librarian and classroom teacher collaborations in terms of teaching, learning and library use." I feel that collaboration is important to student achievement because the quality of teaching improves when we co-teach.

Figure B. Four Planning Priorities for Team Teaching



Implications for my future professional development

I have found many effective ways to teach reading strategies but there is always more to learn. Here are the things that I will to work toward to become more effective:
Seeking feedback

I learned that I am reliant on feedback and require it to keep me engaged in personal and professional pursuits. I must remember that effective feedback is equally important for all students but, even more so, for those who do not ask for it. Struggling readers benefit from small group teachings, because immediate feedback provides the encouragement required to persevere. Students' engagement increases when timely feedback is given. Research has shown that feedback has the greatest influence on student achievement (Katz, 2008).

The use of Davenport and Lauritzen's (2002) over the shoulder miscue analysis assessment was one of the best ways for me to assess the fluency and comprehension level of a student in the junior grades. The feedback from this informative test may guide the strategies I use with a specific student.

Improving questioning techniques

I discovered that I relied on low-level basic comprehension questions when teaching this small group. Alternatively, I would ask a question requiring a high level of thinking, but I would not give the boys enough time to generate a response. The development of good critical thinkers

requires me, as a role model, to use a variety of thought-provoking questions to elicit thoughtful responses. I will take advantage of the eworkshop.on.ca video lessons to get me started on the road to better questioning techniques. Critical literacy is an important skill required by all learners. "Questioning is the catalyst for deep thinking" (Koechlin, 2009).
Strengthening my own metacognition skills

Another effective way to teach students how to think about the way in which they learn is to model think-alouds. I found that I struggled with this strategy. I believe that this is a very powerful tool for students; it allows them to see inside an effective reader's head and to understand that all readers actively work to make sense of what they read. Think-alouds provide a framework for students to model their reading comprehension strategies. I intend to visit other classrooms to see examples of successful think-alouds to improve my competence.
Summary

I learned a great deal about myself as a teacher of reading strategies, and about how I can apply these strategies with students. I learned more about the reading process by observing the students' efforts. I have also learned to teach reading comprehension skills in many effective ways. This year, I will work to incorporate specific reading strategies into my library program.

I discovered that many of the programs I run in the library are valuable and should continue, as they employ some of the six goals that readers need to foster literacy development. This gives me more confidence and energy to develop the programs further, and to make them relevant to students' interests and academic needs.

My confidence to help students and staff with literacy programming has increased because of this project. I can be a leader of literacy initiatives at my school and fulfill the very important role of teacher-librarian. With a focus on all students to enjoy reading, and a renewed interest to develop critical literacy and metacognitive skills, I have a clearer understanding of how I can improve the literacy skills in my school.

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Biography:

Melissa Jensen works for the Simcoe County District School Board as a full time teacher-librarian at Trillium Woods E.S. in Barrie. She has enjoyed her 18 years as an elementary teacher- especially the last nine as teacher-librarian. She has been an active participant as a member of the Simcoe County Teacher Librarian Association and the Ontario Library Association since 2001. In the past, Melissa has made media literacy presentations at the OLA Superconference, the Simcoe County Teacher-Librarian conference and by webconference hosted by the Education Institute (EI). She continues to find ways to work with other teacher-librarians to learn more about information communication technology. Most recently, she participated in two different Ontario Teacher Federation funded projects about critical literacy. She is the course instructor of Librarianship Part 1 for Nipissing University in the Barrie area. As part of her Masters of Education degree, she completed a thesis where she designed an action research project to learn effective ways to teach reading strategies to struggling readers.

Questions of Authenticity in Multicultural Children's Books

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Abstract:

This article highlights some of the key literature on cultural authenticity in children's literature. The paper is organized in three main sections. First, the theoretical framework based on Gay's (2000) theory of culturally responsive teaching is presented and explained. According to Gay, multicultural information, resources, and materials should be incorporated into all aspects of school, including the subjects and skills that are taught explicitly and implicitly in the curriculum. The second section offers definitions of multicultural literature and cultural authenticity. Finally, three major questions from the literature will be addressed. They are: Why is authenticity important? Who should write multicultural stories? And, how should books be evaluated for authenticity? It is important to recognize that these three questions barely scratch the surface of ideas and trends that emerged throughout the literature on this topic. Ultimately it is important for all children to have access to authentic multicultural children's literature in schools and libraries. Although evaluating literature for cultural authenticity is complex and often challenging, teachers and librarians have a social responsibility to find the best examples of authentic multicultural literature and resources to use with students.

Questions of Authenticity in Multicultural Children's Books

"The most important way for teachers to encourage insightful reading of multicultural literature is to model that behavior. They need to keep books about other cultures in the classroom and show that they value such literature" (Mathis, 2001, p. 158).

As a student teacher in a small city in Ontario, Canada, I created a multicultural literature unit for my students in grades 5 to 8. Using picture books, they learned about story conventions and illustration styles and techniques. They then read multicultural novels and each student booktalked their book to their peers. Finally, the students spent a number of weeks writing and illustrating their own multicultural picture book. At the time, I was proud of this unit and felt that it was useful in exposing my students (mostly Euro-Canadian, middle-class children) to different perspectives, cultures, and experiences, both within Canada and around the world. We read books like *Amazing Grace* by Alice Hoffman (1991), about a young African-American girl who is told by her peers that she cannot audition for the role of Peter in Peter Pan because she is a girl and Black. The book itself was popular and received excellent reviews at the time it was published. However, some scholars question the authenticity of the book because the author is British, and white, and therefore, according to some, not the best person to tell this story of exclusion and racism (for a detailed review of this book, see Mikkelsen, 1998). Thinking about this unit now, after having more teaching experience and having more time to read and think about the meaning of multicultural literature and its role in the classroom, there are many things I would change if I taught a similar unit today. My questions and concerns about this unit, especially related to authenticity in children's literature, form the practical foundation for this paper. The theoretical context for this paper comes from Gay's (2000) work on culturally responsive pedagogy.

This article is organized as a literature review and highlights some of the key literature on cultural authenticity in children's literature. The remainder of this paper will be presented in three main sections. First, a brief description of the theoretical framework that helped shape my thinking about multicultural education and multicultural children's literature. Second, some key terms will be defined. Finally, three major questions from the literature will be addressed. They are: Why is authenticity important? Who should write multicultural stories? And, how should books be evaluated for authenticity? It is important to recognize that these three questions barely scratch the surface of ideas and trends that emerged throughout the literature on this topic.

Theoretical Framework

My thinking about the topic of multicultural children's literature evolved after reading Geneva Gay's (2000) work on culturally responsive teaching, which

> ...uses ways of knowing, understanding, and representing various ethnic and cultural groups in teaching academic subjects, processes, and skills. It cultivates cooperation, collaboration, reciprocity, and mutual responsibility for learning among students and between students and teachers. It incorporates high-status, accurate cultural knowledge about different ethnic groups into all subjects and skills taught. (p. 43)

Gay advocates for education that integrates multicultural citizenship education into all aspects of the curriculum. According to Gay, culturally responsive teaching "incorporates multicultural information, resources, and materials in all the subjects and skills routinely taught in schools" (p. 29). Four of the characteristics of culturally responsive teaching provide the theoretical framework

for my examination of authenticity in multicultural children's literature. First, Gay describes culturally responsive teaching as validating, in that it "acknowledges the cultural heritages of different ethnic groups and incorporates multicultural information, resources, and materials into all subjects" (p. 29). Second, this kind of teaching is empowering for students because it helps develop personal and academic confidence and courage. Third, Gay states that culturally responsive pedagogy is transformative because it is "explicit about respecting the cultures and experiences [of all students] and it uses these as worthwhile resources for teaching and learning" (p. 32). Finally, Gay notes that culturally responsive teaching is emancipatory, in part because it ensures that students have access to authentic knowledge about different ethnic and cultural groups.

As I considered these pillars of culturally responsive teaching, I wondered why the same characteristics could not (or should not) be applied to multicultural children's literature. Most teachers and librarians would agree that multicultural literature should be validating, empowering, transformative, and emancipatory. This is exemplified in the example of the kindergarten classroom as described by Gay (2000). In this classroom's Reading Center, the teacher had collected a wide variety of resources representing "many different ethnic groups, topics, and literary types" (p. 39). Lois, the teacher, collected material by asking parents to donate two books or other resources to the classroom each year. One book was meant to reflect the child's own ethnic group and the other could be about any culture the parents would like their child to learn about. As a culturally responsive teacher, Lois created a classroom environment with books, resources, pictures, displays, and artifacts that were validating, empowering, transformative, and emancipatory and she tried to ensure that the visual depictions of ethnic groups and individuals were "accurate, authentic, and pluralistic" (p. 40). This ability to seamlessly integrate multicultural resources into the classroom is commendable, and Lois' ability to find and collect these resources is even more commendable. The question for many teachers and librarians then becomes, how should multicultural literature be selected to ensure that it represents accurate information and authentic perspectives, thus ensuring that these resources meet the criteria identified by Gay.

Key Definitions

Prior to examining the literature about multicultural children's literature and questions of authenticity, it is important to review two key definitions from this field of study. First, multicultural literature generally refers to "a body of literature that spans all literary genres but generally focuses on primary characters who are members of underrepresented groups whose racial, ethnic, religious, sexual orientation, or culture historically has been marginalized or misrepresented by the dominant culture" (Gates & Hallmark, 2006, p. 3). This definition is inclusive of a variety of cultural, ethnic, and other groups. Some writers have acknowledged that the notion of a power differential is a key feature of multicultural literature (Dressel, 2005), while others take a less political stance and prefer to define multicultural literature as literature that represents any distinct cultural group, especially non-White, non-European perspectives (Higgins, 2002; Madigan, 1993; Yokota, 1993). Multicultural literature encompasses a wide range of formats, genres, and styles and can also include retellings or adaptations of cultural folktales and mythology. A complete look at the diversity of definitions of multicultural literature can be found in Mingshui Cai's contribution to *Stories Matter: The Complexity of Cultural Authenticity in Children's Literature* (2003).

The term cultural authenticity is less clear cut and more widely debated in the literature. In fact, a number of authors have stated that there is no one formulaic, 'cookie cutter' definition (see, for example, Bishop, 2003; Short & Fox, 2003). That said some authors have provided their own working definitions of cultural authenticity. Mo and Shen (2003) state that authentic multicultural

literature "involves cultural values and issues/practices that are accepted as norms by the social group (p. 200). Alternatively, Smith and Wiese (2006) define authenticity as "the extent to which the reteller, adaptor, or illustrator (1) remains reasonably true to the original printed source, (2) accurately and respectfully represents the values and beliefs of the cultural group, and (3) responsibly depicts geographical, historical, and cultural details" (p. 72). These varied definitions are only a sample of the ongoing debate over a working definition of cultural authenticity. The ideas of cultural values and norms, respect, accuracy, and truth are all key phrases suggested by the literature that have shaped my own evolving understanding of cultural authenticity.

Why is cultural authenticity important?

Multicultural and citizenship education are becoming increasingly important in curricula across North America (see, for example, Alberta Education, 2005). Teachers are using a variety of resources to prepare students to be active and engaged citizens in pluralistic democracies. Multicultural children's literature, which has become more widely published in the last two decades (Yokota, 1993), is often used in the classroom to introduce students to a range of perspectives and experiences outside their own. Because teachers are using a resource-based approach to introducing children to concepts of race and culture, there has been an increasing demand from authors, illustrators, academics, and others that the literature being used in the classroom (and elsewhere) should accurately and authentically portray a culture's experiences and values (Gay, 2000). Why is authenticity important?

The answer to this question comes from a variety of sources. In a study about preservice teachers and authenticity in picture book folktales, Smith and Wiese (2006) note that "the consequences of inaccurate portrayals through stereotypes are especially significant for young children since children reportedly develop an awareness of cultural and physical characteristics of people at an early age" (p. 71). Similarly, Noll (2003) stresses the importance of authenticity because the images in children's literature can shape a child's attitudes and perspectives. She notes that "when literature excludes certain cultures or contains misinformation and warped information...children's identities, attitudes, and understandings are negatively influenced" (p. 182). Other authors argue that authenticity is important because children of all cultures deserve to see themselves accurately and sensitively reflected in the literature they read (Dudley-Marling, 2003; Harris, 2003). Finally, Yokota (1993) suggests that

> if the intent is to provide vicarious experiences from cultures other than the students' own, and if these experiences are to help in the understanding of a different background, thereby influencing decisions students will make about living in this culturally pluralistic world, these vicarious experiences must be true to the culture represented. (p. 160)

Who should write multicultural stories?

The biggest debate among writers, scholars, authors, and illustrators, other than perhaps what cultural authenticity *is*, is the question of who should write multicultural stories. This question is a frequent topic in academic and professional writing. This section will provide an overview of some of the most compelling arguments and answers to this question.

There are those people who argue that stories about different cultures, experiences, and perspectives should only by written by those people who are from 'inside' that culture. These writers suggest, for a number of reasons, that authentic stories can really only come from within a particular culture (see, for example, Mikkelsen, 1998; Seto, 2003; Woodson, 2003). Therefore,

African-American stories should only be told by African-American writers and illustrators; Aboriginal stories should only be told by Aboriginal authors and illustrators; and so on. Yokota (1993) avoids stating an explicit opinion, but notes that it is often a difference in 'voice' that makes an insider's view more authentic. In her own study of the literature, Yokota found that "an inside perspective is more likely to give an authentic view of what members of the cultural group believe to be true about themselves" (p. 158). Similarly, Woodson (2003) concludes that her

> belief is that there is room in the world for all stories, and that everyone has one. My hope is that those who write about the tears and the laughter and the language in my grandmother's house have first sat down at the table with us and dipped the bread of their own experiences into our stew. (p. 45)

Other writers have argued that white, Euro-American/Canadian authors and illustrators should not be restricted to telling white, European-based stories. The arguments on this side of the debate suggest that extensive research, personal experience, and imagination, among other things, should not be discounted as appropriate ways of writing authentically (see, for example, Aronson, 2003; Lasky, 2003; Moreillon, 2003; Salle, 1994). Harris (2003), while acknowledging that authentic literature can be written from both insider and outsider perspectives, cautions against the "authorial arrogance of some European American authors who demand freedom to write about any group or culture they wish without subjecting their work to critical scrutiny" (p. 124). Kathryn Lasky, an author of children's books, suggests that creating these kinds of cultural boundaries and establishing strict rules about who can write certain books is a dangerous precedent. She equates this kind of practice to a "kind of literary version of ethnic cleansing, with an underlying premise that posits that there is only one story and only one way to tell it" (p. 88). Moreillon, herself an 'outsider' author, observes that

> all children deserve literature that reflects the cultural diversity of our society and world. They deserve honesty from the writers of their books...When an author who has written a book from outside his or her own culture shows up at a school for an author visit, students should be surprised to learn that he or she isn't a member of the culture depicted in the book...All children deserve books that will inspire them and offer them expanded perspectives and worlds of possibilities. (p. 75)

Although Hearne's (1993a; 1993b) articles about "Reducing Cultural Chaos in Picture Books" focus specifically on folktales, her observations apply to the range of multicultural literature. She addresses this insider/outsider debate by stating that "understanding depends less on biology than on knowledge and experience" (p. 34).

Overall, this insider/outsider debate is probably too simplistic. But, it does emphasize the ongoing tension that surrounds multicultural literature and the people who create it. Of course, there is also some 'gray' area that should be explored. First, within any given cultural group, there are multiple perspectives. As a result, it is impossible for one person to represent every member of his/her cultural group. Bishop (2003) acknowledges that writers can write outside their personal experience, sometimes successfully and sometimes not, but that there is a "certain arrogance in assuming that one can incorporate into a work a cultural perspective that is only superficially familiar, and that writers who attempt to do so should understand the difficulties and the risks inherent in trying" (p. 32).

How should books be evaluated for authenticity?

If, as Gay (2000) suggests, multicultural education, and by extension multicultural literature, should be validating, empowering, transformative, and emancipatory, the question of selecting and evaluating resources needs to be addressed as part of a discussion of authenticity in children's literature. Teachers and librarians have access to many resources, some good, some bad; some authentic and accurate, some not so much. How, then can educators who use multicultural children's literature with their students ensure that they are using material that is authentic, and therefore culturally responsive, using Gay's characteristics? The literature offers a number of suggestions for evaluating multicultural literature for authenticity. One of the most cited sources is Betsy Hearne's two part article published in *School Library Journal.* Hearne deals primarily with picture book versions of folktales and stresses the importance of cultural authenticity in these works. She notes that an important evaluation criterion should be the inclusion of source notes that clearly set the story within its cultural context. A 'model source note', therefore, "cites the specific source(s), adds a description for cultural context, and describes what the author has done to change the tale, with some explanation of why" (Hearne, 1993a, p. 25). In the second part of the article, Hearne (1993b) goes on to argue that "a text adapted from folklore be judged for its balance of two traditions: the one from which it is drawn and the one that it is entering" (p. 33). This idea of considering the audience when determining and evaluating cultural authenticity is one that occurs throughout the body of literature on this subject. Yokota (1993 notes that it is essential when evaluating a book's cultural authenticity to consider the intended audience, because the use of language and level of cultural sensitivity may vary depending on the author or illustrator's original audience. Mo and Shen (2003) expand on this idea, noting that "when a folktale is adapted from one culture to another, the author or illustrator has to consider the possible value conflict between the two cultures and the recipient culture's ability to accept the introduced value" (p. 207). This awareness of the intended audience and what that audience will accept or tolerate can affect the authenticity and accuracy of a multicultural story or folktale.

Other criteria for evaluating multicultural literature for authenticity are also suggested throughout the literature. Accuracy is an important factor for consideration. Accuracy, especially in terms of factual and cultural information, certainly plays a role in authenticity (Noll, 2003; Rochman, 2003), as do text and images free from stereotypes. As Mo and Shen (1997) point out, "nonstereotyped portrayals, positive images, lack of derogatory language, accurate historical information and cultural details, and realistic illustrations" (p. 86) can all be used to determine the accuracy and authenticity of a book. In a later piece, these authors go further, however, and argue that "authenticity is not just accuracy or the avoidance of stereotyping but involves cultural values and issues/practices that are accepted as norms of the social group" (Mo & Shen, 2003, p. 200). Yokota (1993) also suggests that multicultural literature should have authentic dialogue and relationships, in-depth treatment of cultural issues, and rich in cultural details to be considered for inclusion in a school or library collection.

Cultural authenticity should be evaluated based on the criteria stated above. However, a few authors caution that authenticity should not be the only measure of a book's worth or value. In fact, the book's overall quality in terms of overall literary structure and the quality of the writing and illustrations (if applicable) all need to be considered when evaluating and selecting multicultural literature for children (Cai, 2003; Lasky, 2003; Rochman, 2003). A poorly written, poorly illustrated book is still poorly written and poorly illustrated, whether or not it is culturally authentic. As Salle (1994) notes, "in the name of being sensitive to diverse cultures and groups, it becomes possible to become overly careful when looking at a piece of literature and placing more emphasis upon the writer's heritage than upon the work itself!" (para. 12).

In my own professional and personal experience, achieving this balance between authenticity and literary quality is essential, but sometimes difficult when selecting resources for children. This is especially true when choosing resources to support a specific curriculum topic for which there are limited resources and an even more limited budget. Considering both literary quality and authenticity often muddies the waters of resource selection, which is difficult enough, but both need to be included in the evaluation process in order to find and use the best possible resources with children.

Conclusion

Authentic multicultural children's literature should be available to all children in schools and libraries. It is vitally important for children to see accurate, authentic portrayals of different cultures in the literature they are exposed to throughout their education. But, pinpointing what is authentic, or even who can write authentically, is a difficult task. Evaluating literature for cultural authenticity is also a complex job, especially for teachers and librarians who themselves are members of the majority culture and therefore, perhaps unable to identify or understand the cultural facts and values inherent in a particular book. However, if one of the purposes of teaching with multicultural literature is to explore and understand different viewpoints (Dressel, 2005), then teachers and librarians have a social responsibility to find the best examples of these resources to use with students. Literature, like culturally responsive teaching, has the power to validate, empower, transform, and liberate "ethnically diverse students by simultaneously cultivating their cultural integrity, individual abilities, and academic success" (Gay, 2000, p. 44).

Considering the power of multicultural literature and these questions of authenticity that surround these kinds of books, I would now re-think the structure and intent of the multicultural literature unit that was described in the introduction to this paper. Rather than creating a separate unit highlighting "multicultural" picture books and novels, I would integrate these books into all aspects of the curriculum throughout the year. I would re-consider the selection of resources I used with my students and strive to incorporate literature written from both an insiders' and outsiders' perspectives. I would also focus the unit more on issues related to authenticity and multiple perspectives, rather than on simply the fact that these were books about people 'other' than the students themselves. For example, I would include Mary Hoffman's (1991) *Amazing Grace*, but would discuss with the students the question of who should write multicultural stories and what role the insider/outsider perspective plays in this question of cultural authenticity. An authentication project, like that described in Smith and Wiese's (2006) study, could be adapted for younger students to give them a chance to think about and explore issues related to authenticity in multicultural literature. Regardless of the changes I would make in introducing students to multicultural literature, I continue to believe in the importance of including literature from a wide variety of cultures and experiences in the classroom. Stories are important, they are both a window and a mirror through which children see themselves and others (Gates & Hallmark, 2006). Perhaps more important is the fact that

> the thoughtful use of literature can "enhance the education of people for a democratic way of life" (Rosenblatt, 1938/1995). ... The debates about cultural authenticity in children's literature matter because they foster the dialogue that is essential to democracy and to the struggle for social justice. (Short & Fox, 2003, pp. 22-23)

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Learning With Technology

Beyond Google (and Evil)

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The role of the teacher-librarian is increasingly multi-faceted and thankfully moving away from the monastic stereotype of the sexless bookworm. Or perhaps not. The hilarious vignette entitled "Medieval Help-Desk" found at both www.youtube.com and, thankfully, at www.teachertube.com, illustrates our roles: we put students and teachers at ease with new technologies that facilitate research; we are indispensable resources for both staff and students; and finally, like Virgil, we can be counted upon to lead the school community, like Dante, through the labyrinthine paradise (or inferno) of information. Monks' robes or nuns' habits are optional.

Along with our colleagues in the classroom, teacher-librarians hold the keys to help unlock the vaults of print and electronic information; however, it is the mandate of the latter to facilitate the quest for information (as opposed to knowledge!). The plethora of data available to students has become, ironically, an obstacle to the acquisition of knowledge. Blogs, podcasts, and aggregators (sites that "curate" other websites and sources) multiply by the thousands on a daily basis, both democratizing the access and dissemination of information but at the same time obscuring fact from fiction. We can all "find" information: it is what we do with it that has now reached the tipping point.

In his recent essay, "Is Google Making Us Stupid?" (*The Atlantic*, July/August 2008), author Nicholas Carr posits that the ubiquitous search engine has indeed limited both our need, and indeed, our capacity to think deeply. We have become of a society of skimmers and scanners; this in turn, he asserts, has a physiological impact on the neurocircuitry of our brains that will eventually modify our cognitive behaviour. He observes, "Our ability to interpret text, to make the rich mental connections that form when we read deeply and without distraction, remains largely disengaged... We can expect... that the circuits woven by our use of the Net will be different from those woven by our reading of books and other printed works." Scary stuff. And yet, the readiness with which our teaching colleagues encourage the use of general search engines is testament to this trend.

We are encouraging our students to become, in Carr's words, "pancake people" where immediacy supersedes depth. Time-pressed society does not encourage or reward students to think deeply; a sign of this is the phenomenon of rubric evaluation where one "ticks" off achievement rather than assesses the merit of work. Critical and higher level thinking skills and Bloom's Taxonomy continue to be the pedagogical backbone of teacher education and yet both are increasingly challenged. Expediency over effort seems to be the unspoken mantra, accompanied by the hand wringing over the increase of plagiarism and lack of academic integrity.

What to do? The answer is twofold. First, the prevailing assumption that the classroom teacher is adept at navigating the internet and locating credible information must be confronted as false. It is therefore the job of teacher-librarians to teach not only students, but also their teachers in order to increase overall web-literacy as well as to facilitate research. Second, teacher-librarians must continue to engage in active collaboration with the classroom teachers to produce assignments that are authentic, meaningful and feasible.

The Action Plan: Teacher Librarians must:

- Show leadership by offering professional development to staff. Teachers are consistently pressed for time and appreciate any type of efficiency that can be brought to their practice, whether it be marking, classroom management, planning, or, in this case, access to information.

- Emphasize the need for access to access credible, accurate information for all teachers and their students.

- Familiarize staff with electronic databases and catalogues accessible from school and home.

- Present an orientation outline at a department heads' meeting and clarify how the library can facilitate the delivery of program and meet the research needs of students.

- Offer a brief tutorial to subject departments at the end of their department meetings so that their particular needs can be addressed using examples that support curriculum, e.g. biomes, economic depression, global warming, literary criticism. One such on-line tutorial is found at http://www.knowledgeontario.ca/TeachOntario/index.html.

- Collaborate with teachers to produce activities and units of studies that will develop skills that not only locate information, but develop the necessary thinking skills that will lead to synthesis and analysis of information.

By focusing on databases made available to schools such as EBSCO and Knowledge Ontario, teacher-librarians can produce evidence-based studies that demonstrate the effectiveness of these resources. Teachers will understand how digital libraries will enhance both the quality of student work and the efficiency of program delivery. Katrine Watkins and Kathleen Elder describe how their "Google Game" succeeds in streamlining Google searches for students with the use of connectors and limiters such as quotation marks, +/- signs, and site operators. (School Library Journal, 01/01/2006). Applying these tools to advanced Boolean search strings will achieve similar results, without the questionable credibility factor inherent in Google searches.

The Tools:

Teachers, like their students, want their information quickly. They want to know that their valuable time is not being wasted. Teacher-librarians must show them how to confront the tsunami of data that they and their students face on a daily basis. Lee Rainie, the director of the Pew Foundation's Internet and American Life project confirms that "In the Internet environment, where so many people are creating their own content, navigating all of that is certainly a newly required literacy. In order to be a competent, successful citizen, you need a new set of tools." Rainie recently co-authored a study that underscores that belief. Her research that found nearly half (46 per cent, in fact) of Americans used the Internet to inform themselves and shape their opinions on the 2008 presidential election. In 2004, it was 31 per cent; in 2000, 16 per cent (*Toronto Star*, September 13, 2008).

- Show them how Google hits compare to database hits with regard to a subject specific to their practice
- Show them how to minimize the number of hits on a database search
- Introduce them to citation helpers, both on-line and print so they are aware of new formats and they can reinforce the need for academic integrity with their students
- Collaboration should be from start to finish. Teachers and teacher-librarians must not abandon each other after the starting gun has been fired; the teachers must inspire the students and reinforce research skills and the teacher-librarian must cheer them all through the home stretch, ready to offer a hand with planning, implementation and evaluation.

Web literacy is only one challenge among many facing educators today. Transformed by the internet, the school library is no longer the cloistered repository of information. Like the character in the YouTube vignette, we are constantly bemused, frustrated and yet inspired by new technology and innovation. Not only must we be leaders and facilitators in the school community, we must model and apply these new skills as citizens of the twenty-first century. The seminal work loosely referred to in the title of this article alludes to the post-modern predicament in which we as educators find ourselves. If, as Sartre asserted, that we must define them ourselves by our actions, it is incumbent upon society to rethink Google, and think.

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Improving Learning, Engaging Students and Changing the Collaborative Culture of a School Though the Learning Commons

for the Canadian Scholarly Literature and Research Regarding School Libraries in Canada

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The Learning Commons is not a school library using technology but a learning "space" that integrates physical and virtual collaboration. Consequently it both improves learning and changes the culture of the school. This cultural shift occurs because the Learning Commons provides a structured mechanism for teachers to work as teams instead of the traditional model where teachers, for the most part, work in isolation. The Learning Commons brings teachers together and provides support through experts, that not only fosters an improved working environment but also enhances the learning environment for students. Also the Learning Commons provides multiple ways for students to collaborate with each other which opens up a world of exploring and sharing ideas. Collaboration is the key to running a successful Learning Commons.

The Learning Commons has no physical walls and is conceptually everywhere with both physical and virtual spaces from learning centers and classrooms to laptops and cell phones which access the virtual Learning Commons through interactive web 2.0 tools. The key to this space is collaboration where Web 2.0 tools allow the whole school community to share, explore and build on new ideas and learning.

The Learning Commons should be the school's dynamic learning center where teachers collaborate with other educational specialists : literacy experts, technology experts and educators that support both at-risk students and students with disabilities. As a teacher-librarian of a Learning Commons in a grade 7-12 public school I try to bring together different experts to help support learning for the whole school. Under this model I find my work, physically, in "the old library" is decreasing as the whole school has now become part of the Learning Commons physical space. I am now often in classrooms, around the school, collaborating and working virtually with teachers from any location. Other technology experts and myself help students and teachers build their own virtual, collaborative learning spaces which are linked to the Learning Commons web page.

Collaboration is the Key to the Learning Commons

I collaborate with many teachers on educational projects. An example of this is my work with the student success teacher. Her job is to support disengaged students who are at-risk of failing or dropping out of school. Our Learning Commons is unique because the student success teacher, Cynthia Sargeant has placed her office in the Learning Commons. "Originally, when my office was next to the vice Principal's office and I called a student out of class to see me, they arrived at my door anxious and defensive because they immediately assume they will be getting a reprimand, a detention, or possibly a suspension." Students now were put in a comfortable situation and I soon noticed these students would voluntarily come to the Learning Commons on their own time to read for pleasure.

I also work closely with teachers involved with preparing students for provincial standardized literacy testing. The Learning Commons supports these teachers in a number of ways. We provide space for reading tutors, help select reading material and provide on-line resources with links off the Learning Commons web site. These resources now include on-line practice literacy tests that are marked automatically with results shared electronically with teachers on the literacy team. Most of my collaboration is either helping with research, selecting resources or helping students and teachers integrate technology into their learning.

Learning Commons Initiates and Integrates new Technology into the School

According to research done by the Ontario Public School Boards Association which is published in the What If Report , the two major problems for teachers learning technologies is that they "are working in isolation, and there (is) no structure to integrate the many parts of this work, which involves hardware and software, regulations and classroom management, building structure and school culture." Through collaboration the Learning Commons would go along way to solving both there problems.

The Learning Commons should lead the school in the integration of new technologies into the curriculum. Over the last few years my Learning Commons has introduced a wide variety of technologies including podcasting, digital photo stories, blogs, wikis and most significantly Google Apps.

The model I use for integrating technology into the curriculum is based on the main concepts in the new 2010 document Together For Learning, developed by the Ontario School Library Association (OSLA), with support from the Ontario Ministry of Education. In this document the teacher-librarian and classroom teacher work as a team and the teacher-librarian helps guide the teacher with resources available to improve the curriculum. The document has a heavy emphasis on technology.

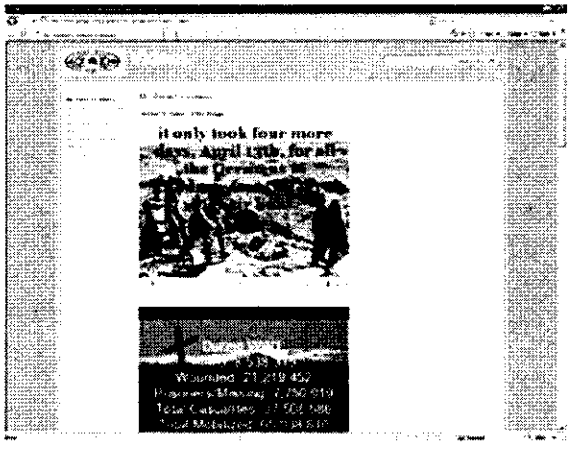
When I first introduce a new technology to a teacher, I always check to see how the technology will fit in with the curriculum. This new technology must engage students and should not be embedded unless it improves learning. Some teachers are very apprehensive about using new technology so planning and having a proper time-line are very important. It is important that teachers realize that "they do not have to learn the technology themselves" or teach the technology. I or another teaching expert will teach the students how to use the technology. The only thing the teacher needs to know is what the technology can produce. Many times I will also make a rubric on the technology as part of the student's assignment and will help the teacher mark the assignment. I am careful to make the introduction of new technology a very positive experience for the teacher, if not that teacher will reject the use of technology in the future. It is important that the teacher is not concerned about learning and teaching technology, but instead on creating good curriculum that engages students.

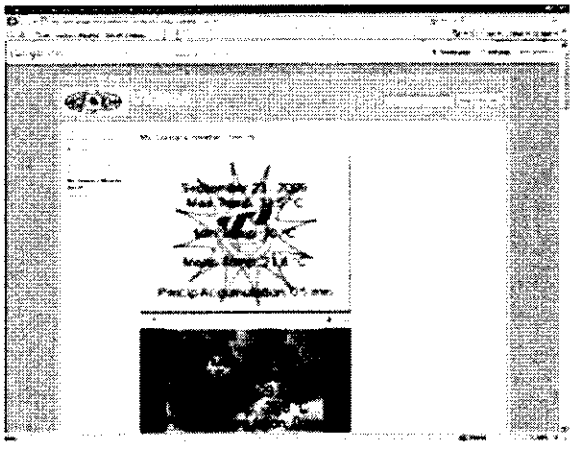
Teaching students the use of technology is made efficient by the use of on-line tutorial videos that are all posted on the Learning Commons web site. When I am teaching students how to create a podcast I show them an eight minute tutorial video which I produced with a colleague and is posted on Youtube. By having the video on-line, students can access it for reference from school or home. I will often see students creating their podcast with both the podcast software running along and a window with the tutorial video. Also if students asks me how to do a certain technology I give them the link for the video. This is usually all the support they need.

Creating "geek squads" of students who are naturally good at the technology is another way of quickly building up your technology knowledge base in a school. I will often just train the "geek squad" of 3 to 4 students from a class and they in turn will guide the rest of the class. I find this works very well in lower grades, specifically grades seven and eight.

I find it important that students demonstrate their projects in front of the whole class using a Smartboard or LCD. Students are far more motivated to do a better job when they have to present in front of their peers as opposed to just handing their projects in to the teacher. When students produce podcasts or digital photo stories I will often post them on the Learning Commons web page as a class project web page (see links below for examples) and I test to make sure that all the student projects will work properly. This has three advantages. First, all the projects are in one place so when students demonstrate their projects, usually using a Smartboard, it is easy to go from one project to another. This works much better than the clumsy system of bringing in projects on memory sticks, CDs or through emailing. Many times these projects will not work because the school computer may or may not have software to run these projects or students have different computers, either PCs or Macs.

Secondly, these projects can be used as exemplars for future classes. For example the grade 12 English teacher will play a podcast done on Hamlet from a previous class and tell students that this is a level 4 project (level 4 is the highest level in our system). This helps students get a clearer idea of how their project will be evaluated. Lastly these projects are available on-line outside the school so parents can see the excellent projects students are working on. This helps the school communicate with its community and promotes the Learning Commons as the projects are posted on the Learning Commons web site.
Digital photo stories posted as project web page on the Learning Commons Web site from Mr. Robert's class and Ms. Dunlop's class.





The Learning Commons supports Cloud Computing

The 2009 Horizon Report "introduces six emerging technologies or practices that are likely to enter mainstream use in learning-focused organizations within three adoption horizons over the next one to five years." According to leading experts in education the two most important trends defining trends in education for the next coming years in technology are cloud computing and portability.

Cloud computing is where all programs and data are held on Internet servers or "the cloud" as opposed to individual computer hard drives. This means that word processors,spreadsheets, presentations software (like PowerPoint), calendars, web pages and other data are all accessed through a browser, so users are not tied to one computer

running specific software. Users can also access their cloud on browsers running on Personal Digital Assistant (PDA) such as the Ipod Touch or some cell phones.

In January 2008 I registered my school for Google Apps Education Edition which is based on cloud computing and implemented it through the Learning Commons. Google Apps Edition is free for non-profit educational institutions and provides schools with the same tools as Google Apps Professional Edition. It allows students and teachers to create documents (Word, Excel, PowerPoint), share calendars, email, chat, create web pages,video and more. It is secure as everything stays within the registered domain and cannot be accessed by people who do not have a school login and it also provides the Postini professional security suite.

Cloud computing is popular because it has many advantages over traditional computer systems where programs are located on a computer's hard drive.

- Software is available for free and it does not have to be installed. Also programs do not take up hard drive space on the computer.
- Software versions are automatically updated when new features are added.
- Documents are automatically saved. No more lost documents even if the computer crashes.
- Documents can be shared in real time with other users. Students can easily collaborate for group projects. It also allows the teacher toaccess their students documents while they are working on them.
- Documents can be published as web pages.
- It reduces the need to print. This helps the environment and saves schools money.

"Google Apps is helping Arizona State University become a highly flexible university that can provide extraordinary technology experiences for its students. Google's integration of webmail, instant messaging and calendaring is second to none." - Kari Barlow, Assistant Vice President, University Technology Office, Arizona State University

"Frantic troubleshooting by an overworked staff versus someone else fixing problems smoothly. A sliver of server space per person versus a five-gigabyte chunk. Half a million dollars versus free. That's what colleges are faced with as they decide whether to continue running their own e-mail services or outsource them to a professional service like Google Apps Education Edition" Chronicle of Higher Education, 1/11/2008

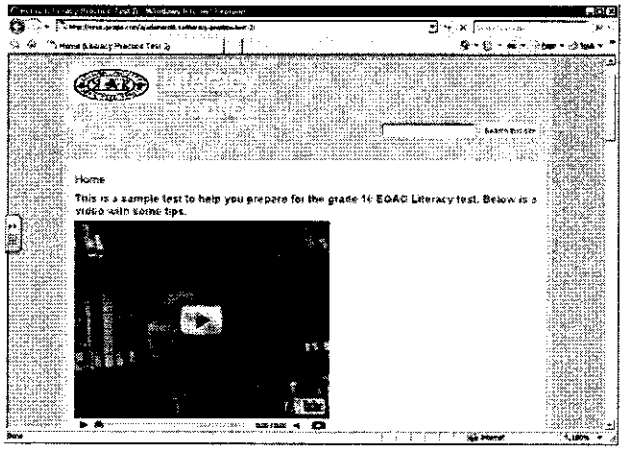
As a learning tool the most powerful thing about Google Apps is its collaborative ability to share documents in real time. Typically a teacher will create an assignment in a Google document (like Word) and share this document with all their students. If the assignment requires group work each group would create a document that would be shared with other members of the group and the teacher. When members of the group work on the document a revision history automatically keeps track of who created what. Students have told me they will often use the revision history to show other group members they they are not pulling their weight. Students will also use Google chat while working on the shared documents. During this whole process the teacher can also edit the group's document and can type constructive comments before the group "hands in" the final assignment. English teachers limit plagiarism by requiring students to do their entire essays using Google Docs, including their rough work. When the teacher evaluates the essay, which is

shared with them, they can check the revision history. Typically a 3000 word essay should have between 200 to 500 revisions. If there were few revisions then the essay was probably plagiarized.

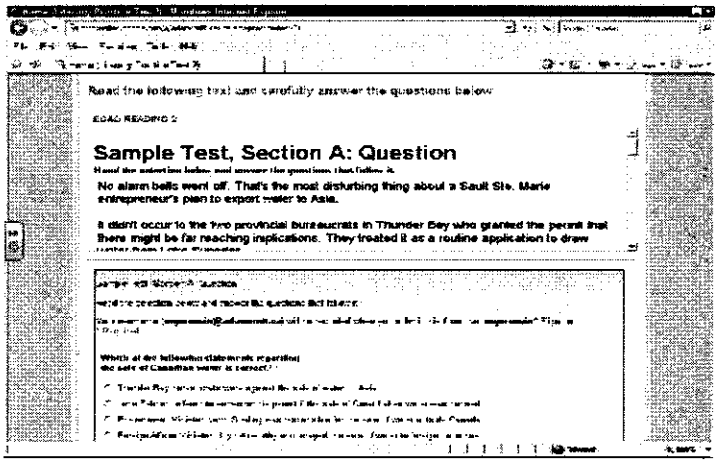
Teachers can also create assignments that would have been impossible without Google Apps. A good example of this are the geography teachers who can now tell a group of students to create a PowerPoint presentation over the next few days as homework and show it in front of the class. Before Google Apps many students would not have PowerPoint (or the same version) on their home computers. Also without a cloud model of shared documents it is difficult to keep track of the latest version of the latest PowerPoint document, if students are emailing the individual files back and forth.

Google Apps also allows students to create on-line surveys that automatically keep track of responses in a spreadsheet and results can even be displayed on the the student's web page. Teachers use these same tools to create on-line tests which can automatically record who did the test as well as automatically mark them. I have been using Google Apps to create on-line sample tests to help students prepare for the Grade 10 Literacy Test (standardized government test that students must pass in order to graduate). The tests are posted on the Learning Commons web page and include embedded videos on tips for writing the Literacy Test. These tests were made with the collaboration of English teachers from different schools around my school Board.

On-Line Literacy Practice Test
Posted on Learning Commons web page - Video Tips



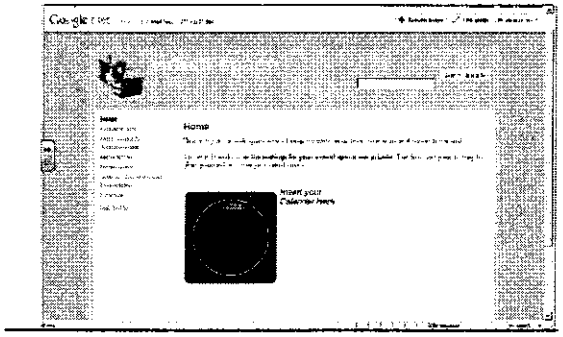
Example of a question



Learning Commons supports students virtual spaces

"The Virtual Learning Commons replaces the library web page which has always been a one-way form of communication between librarians and their patrons." Dr. David Loertscher
Through the Learning Commons web site students can now access a pre-made template that gives them their own virtual space. Below is a screen shot of the template which gives students virtual space to save assignments, multimedia projects, reflections, calendars and

other resources in an organized and structured manner. Teachers find it easier to navigate through student virtual spaces if they have the same structure.



Learning Commons Web Page

The Learning Commons web page is the central resource for the use of technology in the school. Further it acts as a communication tool for sharing resources and providing services such as searching data bases and the book collection. We use the web page to showcase student work, class trips, links to both student and teacher web pages, tutorial videos, common calendars and tutorial videos The Learning Commons web page is also used as a collaboration tool where students can fill out surveys, do on line practice tests and even recommend books to buy.

Learning Commons - Physical Environment

The Learning Commons should have an inviting environment and be designed for collaboration. Round tables where groups of students can collaborate in open areas along with spaces to do small and larger presentations should be provided. Technologies such as Smartboards and wireless should be prevalent. Reading material that students enjoy should be made highly visible. Students should be able to sign out microphones, headsets, memory sticks, LCDs and even netbooks. If possible teaching experts should have an office area in the Learning Commons.

Conclusion

The traditional school library must move toward the new Learning Commons model and embrace technologies that foster a culture of collaborative in a school. The Learning Commons supports teams of teaching experts to work together to improve learning and engage students. Conceptually the Learning Commons physically embraces the whole school, not just the library area, and has many virtual components which can be accessed anywhere, any time. The Learning Commons must stay relevant to the new "wired" generation and instill a love of learning, exploring and creating.

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Learning Partnerships and Collaborations

Together We Are Stronger
K-16 Information Literacy Collaborations

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Education is lifelong and broad based. Many institutions and experiences will contribute to every individual's educational experience. Bundy, 2002, p. 53

It has long been recognized that high school students use academic libraries to support their school work (Craver, 1987). Burhanna and Jensen (2006) suggest that developing collaborations and partnerships among academic librarians and K-12 teacher-librarians will help students make a more successful transition from high school to university by equipping them with the essential skills required to meet the information literacy demands of their 1st year post-secondary studies and beyond. The term K-16 has been coined in the United States to describe education from kindergarten through completion of an undergraduate degree. Cahoy and Moyo (2009) point out that K-16 collaboration efforts are a "result of the renewed higher education outreach efforts of the last ten to fifteen years" (p. 21). They maintain that the purpose of K-16 collaborations is to ensure that students are academically prepared and will be able to succeed in post-secondary education. The authors further contend that "collaborating to better understand and develop students' information literacy skills is integral to impacting student academic success" (p. 21).

Both the American Association of School Librarians (AASL) and the Association of College and Research Libraries (ACRL) in the United States have defined information literacy as the foundation for their instructional efforts. Both organizations recognize that teaching information literacy skills is recognized as critical to lifelong learning. In 1998, AASL and ACRL formed a joint task force to look at ways to encourage closer collaboration between K-12 and post-secondary librarians. As Nichols, Spang, and Padron (2005) suggest, the publications *Information Power* (AASL, 1998) and *Information Literacy Competency Standard for Higher Education* (ARCL, 2000) clearly connected the commonalities that these two organizations share in preparing students to meet the information challenges of the 21st century. From this joint task force, an *AASL/ACRL Blueprint for Collaboration* (2000) was developed which identified existing successful collaborative partnerships and made recommendations for future collaborative efforts. Currently, in the United States collaboration among post-secondary librarians and K-12 is more evident; however, the same collaboration does not appear to be evident in the Canadian environment.

There is a solid foundation of articles that describe collaborative projects, particularly American-based partnerships. One excellent example is Burhanna's (2007) article titled *Instructional Outreach to High Schools: Should You be Doing it?* Not only does it provide an overview of a specific program, but includes key questions, considerations, and recommendations for establishing partnerships. However, for the most part, these projects are not research-based. Rather they detail the components and elements of a particular program focusing on collaboration and partnership. The majority of articles unfortunately are in the vein of "how we done it good" case studies. The

current study steps away from describing a particular program and focuses on key stakeholders' conceptions of what is required for successful collaboration. Key stakeholders include: academic librarians, teacher librarians, school administrators, and university researchers.

Purpose of the Study:

The study sought to examine and explore stakeholders' conceptions for establishing meaningful collaborations focused specifically on information literacy, between academic and school libraries.

Methodology:

An open-ended survey instrument with six questions was developed and was pre-tested with one academic librarian and one teacher-librarian. Minor changes were made based on feedback.

The open-ended questions included:

1. What are the ways that teacher librarians/school library media specialists and academic librarians could collaborate on activities related to information literacy?
2. What are the potential benefits of establishing collaborations between teacher librarians/school library media specialists and academic librarians?
3. What potential barriers or hurdles exist for establishing collaborations?
4. Why is it important to establish collaborations between teacher librarians/school library media specialists and academic librarians?
5. With whom should collaborations be established (e.g. administrators, committees, councils, etc)
6. Are you aware of any current collaborations? Please provide detailed descriptions of established collaborations.

This exploratory study identified participants from four key stakeholder groups including: teacher-librarians, academic librarians, researchers/faculty whose expertise involves school libraries, and school administrators responsible for school libraries.

Key stakeholders were identified through previous personal collaborations, recommendations, searches of conference presentations and workshops relevant to school libraries, university library websites, and traditional literature searches. In order to inform a Canadian perspective, the majority of key stakeholders identified were Canadian. However, some experts from the United States were identified and included in the request for participation as it was felt that their expertise and knowledge would benefit the study.

Forty-six prospective participants were contacted through email. Eighteen completed surveys were returned, resulting in a 39% response rate.

Participants included:

- Six teacher-librarians. Included both TLs working in elementary and secondary schools. All participants had masters degrees/certifications relevant to school libraries. Average number of years teaching was over 25 years.
- Four academic librarians (one non-Canadian). All involved in high school partnership programs through their academic libraries. Average number of years of working in academic libraries was 11 years.

- Five researchers whose expertise involves school libraries (one non-Canadian). Four of the researchers held PhD/EdD, MLIS (or equivalent) and BEds. One researcher held a BA/MA and PhD.
- Three school administrators responsible for school libraries. All held qualifications relevant to school libraries including MLIS or MEd with concentration in school libraries.

Completed surveys were received via email so transcription was not necessary. Data analysis focused on identifying common themes. Each survey was read thoroughly, noting key concepts and significant statements. The significant statements were grouped into themes of related meanings. The survey responses were constantly referred back to for internal validation and verification.

Results

Several themes arose from the data. Major themes include: communication, one voice, mentoring, student success, time and differences. Themes are discussed from a holistic perspective; that is, the themes that arose from the data were meaningful to all four stakeholder groups.

Communication

"The librarians could actually communicate with one another."

It seems that librarians working in different library settings rarely meet to discuss common concerns as they do not, for the most part, participate on the same committees, organizations, or conferences. Respondents suggested that teacher librarians and academic librarians need to start including each other in their professional organizations. For Alberta, particular associations, organizations, and committees mentioned included: Alberta School Library Association, Alberta Learning Library consultations, district school library consultants, district curriculum specialists, and literacy and media councils.

It was also noted it is essential that communication must not only be between librarians, but in order to be successful must include as many stakeholders as possible, particularly senior administration at both K-12 and post-secondary institutions. Specifically, other key stakeholders include educators (referring both to teachers and education faculty), principals and other school administrators, trustees, boards, councils, and government. Each of the key stakeholders brings a unique perspective and expertise that needs to be shared in order to understand the complexity of information literacy as a lifelong learning continuum. As a researcher commented, "it cannot be a librarian-to-librarian thing. It needs to involve institutional policy makers, point-of-contact providers, technology experts, instructors in both institutions, and database/publisher provides, and students".

One Voice

"Pulling on the same team in the same direction, we can be very powerful."

Respondents noted that it is essential that academic and school librarians have one voice, "sing the same song", develop a common vision, and send a consistent message. It was noted that the outcome for both academic and school libraries is knowledge development, and with a collective vision and program alignment, we would be able to be better able to bridge student abilities between the two levels of education.

One way to accomplish this is through the alignment of program outcomes. It was recommended that we work together to develop a scope and sequence of essential skills related to information literacy at all levels including elementary, middle school, high school, and post secondary. Through the shared development of information literacy benchmarks, students' abilities across the educational spectrum will be better understood. As one participant stated "build information literacy programs that more holistically look at learners from school to the academy". There is a continuity of learning, knowledge, and skill development that can be realized through combined efforts. A teacher librarian noted that "as professionals working with students of all ages, I feel that it is important to develop a broader picture of information literate learners at all levels. When we can envision the skills and competencies that students need at the post-secondary level, we can incorporate these competencies into our work with students from K to 12". A school library researcher further commented that we "need a learner-centric rather than library-centric vision, i.e., it is about the learner, not the library".

A teacher-librarian noted, "a shared voice to Advanced Education and Education departments would help to identify some of the information literacy needs of learners at all levels". Currently, in Alberta, libraries fall under three different ministries: Education (school libraries), Advanced Education and Technology (academic libraries) and Municipal Affairs (public libraries). Recently, Alberta Education established the School Library Services Initiative (SLIS) that is investigating school library services. What is unique about this new initiative is that it pulls together the three ministries responsible for libraries in Alberta together in one interbranch committee, focusing on seamless access to library services for all students. As one participant stated: "until these groups have a shared goal and shared trust, any collaborations are likely to fail".

Mentoring

"Building upon each other's expertise."

Mentoring was a common theme. The majority of participants felt that both academic librarians and school librarians could contribute to each other's expertise. It was seen that professional development was a two way street, and that there should be an appreciation of partner's expertise. This suggestion is somewhat different than the literature on collaborations between school and academic libraries. The majority of programs reported in the literature have the academic librarian as "expert", providing guidance to teacher librarians through workshops, symposiums, lectures and other professional development opportunities.

The respondents in the current study clearly recognized the knowledge and expertise that the two groups could share and build upon. One respondent suggested that teacher-librarians and academic librarians could visit one another's libraries to observe students of all ages in "action". Through site visits, student engagement with the research process could be observed, challenges and successes noted, which then could form a basis for common understanding, discussion, and subsequent collaborations. As teaching is a reflective practice, observing other professionals teaching would provide a window into new approaches as well as one's own practice. One respondent commented that she "learned to self-examine my own practice because I knew I was being observed. It made me more reflective of my practice and choices I made in teaching".

It was also suggested that incorporating more technology into professional development would help to reach rural areas, as well as bring together larger urban cities into one meeting place. Technology such as webinars, Elluminate, and video conferencing were suggested.

It was noted, though, that not all schools, or school districts, have qualified teacher-librarians to effectively collaborate with post-secondary librarians. In such instances, mentoring may indeed be more along the lines of the academic librarians providing professional development opportunities for library technicians and library clerks. In such cases, it was suggested to include district specialists and resource consultants so that there is a strong connection with curriculum and student experience.

Mentoring was also seen as essential for pre-service teachers and for university faculty. A school library administrator commented that he believes "we must educate our educators before they will realize the significance of the need" for a united and collaborative approach to information literacy. Teacher librarians and academic librarians could co-teach to groups of university faculty and practicing teachers. Further, modeling for pre-service teachers was seen as important. Participants suggested that collaborative joint teaching amongst teacher librarians, education faculty, and academic librarians could provide rich learning experiences for pre-service teachers, where they could see the benefit and usefulness of integrating other professionals into their teaching activities.

Student Success

"Collaboration would also allow for conversations about the skills students need in order to achieve success."

Collaborating could lead to a better student experience. One participant suggested that "students would be better able to see continuity with their learning as they move between educational institutions and be able to make associations between common learning processes in both environments". Indeed, the purpose of many of the programs in the literature is to enhance student success as they transition to post-secondary institutions. Student success is contingent upon developing competencies that matter to students and "teaching the knowledge-building, critical thinking competencies that enable students to do something with the information that they seem to easily find in order to achieve with their curriculum studies" (researcher). Without such competencies, students are left floundering. A local study conducted by University of Calgary faculty member Doug Brent, illustrated that challenges with library research is one of the major hurdles students face in the transition from high school to university (2006). "We all place the success of the students at the forefront of our work", but participants felt that having a piece-meal, non-integrated or non-continuous approach to information literacy from K-12 through to post-secondary, i.e. a K-16 perspective, threatens student academic success.

Time

"Finding the time to collaborate is often a hurdle, but if the will is there, it can be made to happen."

Almost every participant responded that time, or lack there of, was a significant barrier to collaboration. Finding time to attend meetings, make site visits, build professional development opportunities, and to develop scope and sequence information literacy standards is extremely difficult. For teacher librarians, there is also the issue of release time. There was also concern over who would pay for the release time. It was further mentioned that if there is no institutional commitment to collaboration, it may be more difficult to incorporate efforts into one's daily work. As one academic librarian commented "teacher librarians and academic librarians are often over worked and have little time for initiatives that could be viewed as "extras" which are not core

responsibilities of their jobs". Rather, collaboration would be relegated to evenings and may become an additional burden on top of already busy schedules. Respondents suggested that administration at both schools and universities have to be pro-active and put forth resources, including acknowledgement of time requirements, to enable collaboration.

Differences

"There is an incomplete understanding of each other's work as professional librarians to support student learning for 21st century learning."

It was noted that academic librarians and teacher librarians are in fact different. They do not share the same discourse, read the same literature, or share the same qualifications. They often have different educational routes. Teacher-librarians may or may not have an MLIS. Often they will have a MEd or advanced certificate focusing on school libraries. Academic librarians, on the other hand, all have an MLIS, or equivalent but many do not have any formal training as educators. Academic librarians are trained to be librarians, whereas teacher librarians are trained to be teachers. They may, therefore, have different discourses around the concepts of information literacy.

The two groups belong to different professional associations. Most strikingly, they have different constraints on their work. The academic year is different and the day-to-day interactions with students and faculty (including teachers) are different. Release time is not an issue for academic librarians. In fact, academic librarians are often expected to pursue service and research opportunities as part of their recognized workload, whereas teacher librarians are not.

It was also noted that different geographical locations could be challenging. It may be easier for urban-based schools to develop partnerships with academic libraries because these libraries are situated close to each other; however, this is usually not the case for more remotely located schools. Using technology such as Elluminate for synchronous meetings or blogs/wikis/listservs/web 2.0 for current developments might help to mitigate the proximity concern. Some respondents suggested first meeting face-to-face so that strong connections could be established, and then meet virtually.

Most importantly, though, is that the educational qualifications for teacher librarians vary from school district to school district, from elementary to high school, and even from school to school. A 2005 Statistics Canada study, *Canadian School Libraries and Teacher Librarians: Results from the 2003/04 Information and Communications Technologies in Schools Survey* determined that, despite a body of evidence that shows teacher-librarians help improve student achievement, few Canadian schools have a full-time qualified teacher librarian on staff (Statistics Canada, 2005). Recently, the Alberta Government released results from its June 2009 school library survey where it was discovered that over 90% of schools do not have a qualified teacher librarian and 74% have fewer than a 0.5 FTE assigned to the school library. School libraries may be staffed by library technicians or by library clerks who have no formal training or certification. As noted by participants, collaboration then may be quite difficult because of the lack of shared understandings.

Discussion

Ritzo, Nam, and Bruce (2009) maintain that "building strong collaborations among schools, public libraries, a university programs, and other organizations within our communities is paramount to

our combined futures and our collective goals of literacy, universal education, and community empowerment". (p. 83). The results from the current study certainly concur with this.

Although the majority of programs in the literature purport to look at a K-16 continuum, most of the described partnerships focus on the high school – post-secondary transition. In the current study, participants saw collaboration focused on information literacy efforts as a continuum across students' entire educational experiences, rather than just a concern with transition to post-secondary education. As one school administrator stated:

> With a higher level of collaboration, the information skills, outcomes, and resources would be taught to all levels of students as a developmental or ongoing process rather than having to start over with the basics at each level. The outcomes and skills could truly become a part of life-long learning process that progresses over the student's school experiences

In a personal communication with Ross Todd, (2009), he stated that, "if collaboration does not take place, we hold students at ransom and limit them on their information quests because of institutional hurdles". "K-16 collaborations are concerned with student success and furthering students' information literacy skills" (Cahoy and Moyo, 2009, p. 26). In Alberta, there is a genuine desire and commitment to initiating collaboration amongst librarians from different libraries. Academic, school, and public librarians all have a vested interest in students. There is beginning to be a "cradle to grave" perspective with respect to library services and support. Alberta Education's School Library Services Initiative is the official first step in integrating key stakeholders in the education of students.

> "Together we are stronger, more effective and better able to serve all learners in elementary through post-secondary educational institutions to become information literate citizens in the 21st century" (teacher librarian)

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Information Literacy Leadership

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Recently there has been much discussion regarding how schools are able to foster development of students who are information literate citizens. In pursuit of this goal the Canadian Association for School Libraries (2003) has developed eight Information Literacy Outcomes that focus on students using information responsibly, respectfully, critically, strategically, expressively, for decision making and with aesthetic appreciation—as well as using information and media tools with technical competence. This short paper proposes that information literacy leadership by school librarians and school principals fosters the development of these digital citizenship skills in both students and staff members.

The Principal's Perspective - Dianne Yee

During my doctoral research in the late 90's, I investigated what I described as information and communications technology (ICT) leadership in 10 carefully selected, ICT-enriched schools in Canada, New Zealand and the United States. Essentially, I was examining the role of the principal, the nature of effective professional development, and the competencies required of school leaders in educational environments that had been identified as exemplars of ICT use. As a result of that research, I suggested a number of ICT leadership practices that assisted schools to develop expert and innovative ICT use by students and staff members, a student-centred learning environment, a collaborative school climate, authentic and individualized teacher professional development, and the economy of ICT resource acquisition in a networked organization.

Although I was exploring the role of the principal in using ICT as a tool to enhance teaching, learning and leadership, the data from the study also provided insight into other personnel who were key ICT leaders in the schools--ICT specialist teachers and classroom teachers. This research supported the notion that a variety of school personnel share the responsibility for ICT leadership. The ICT specialist teachers had a variety of titles (media librarians, information specialists, information skills teachers, technology facilitators) but inevitably they were located in an area of the school which would have been traditionally described as the library--although it was configured and used very differently in these contexts. These spaces, which are now generally described as "information commons", held a variety of print and digital resources and a wide variety of computer-based technology; and they were active, research centres.

As I continued to work as a high school principal in several different schools over the past 10 years, my experience and research regarding ICT leadership guided my approach to human and financial resource allocation. My perspective was consistent with the work of Don Knezek (2010), who was Project Director of the original NETS for Administrators Project, affiliated with the International Society for Technology in Education (ISTE). This American project created the National Educational Technology Standards (NETS) and Performance Indicators for Administrators in 2002, and these standards were updated in 2009. Knezek, who is now the CEO of ISTE, has indicated that:

> "integrating technology throughout a school system is, in itself, significant systemic reform. We have a wealth of evidence attesting to the importance of leadership in implementing and sustaining systemic reform in schools. It is critical, therefore, that we attend seriously to leadership for technology in schools" (p. 1.)

When I moved to Lord Beaverbrook High School, a large urban comprehensive high school, I continued to work to further develop the ICT skills of the students and staff members and to update the technology itself.

The Roles and Leadership Competencies of "Learning Leader for Teaching and Learning Technology"

In my research I identified four key roles for ICT specialist teachers that I described as: learning focussed envisioning, adventurous learning, patient teaching, and entrepreneurial networking. In terms of "learning focussed envisioning", ICT specialist teachers were very influential in creating the school ICT vision and were concerned with maintaining student learning as a focus in ICT decision making. They were active members of the school ICT committees and frequently sought ICT professional development opportunities for themselves and others. As "adventurous learners", the ICT specialist teachers had a history of developing personal ICT competence because they made it a professional and personal priority to seek out and experiment with new instructional approaches, software and hardware. As "patient teachers", the ICT specialists were responsible for instructing students--in classroom groupings, in small groups and as individuals. However, they also worked as partners with classroom teachers providing the ICT expertise or teaching specific ICT skills to students. They were responsible for working alongside classroom teachers to support student-centred learning with ICT in their classrooms. In terms of "entrepreneurial networking", the ICT specialist teachers were skilful partnership builders with school district colleagues, ICT vendors and higher education personnel. They were often given opportunities by their principals to attend meetings, workshops and conferences where they developed collegial networks. It was this frame of reference that we used as we developed the position of Curriculum Leader (CL) for Teaching and Learning Technology at Lord Beaverbrook.

From my perspective, the CL for Teaching and Learning Technology that we hired needed to be a certificated teacher librarian to bring a classroom teacher lens to the work on ICT skill development and information literacy. In our large school context with four assistant principals, one of the assistant principals was assigned leadership liaison for school ICT initiatives. That assistant principal was a member of the school technology committee, but the chair of the committee needed to be the CL for Teaching and Learning Technology working closely with our IT Specialists who managed the network, installed software, and "evergreened" our hardware. In addition the CL for Teaching and Learning Technology

became a member of the school Leadership Council having a voice in developing whole school policy including the school timetable. As well the CL for Teaching and Learning Technology accepted a major leadership role in our whole school focus on classroom assessment by guiding and supporting the various curriculum departments with their community of practice work on SMART Outcomes. (In 2008, our district renamed the administrative position Curriculum Leader to Learning Leader.)

The Learning Leader Perspective - Marlene Ponjavic

As Learning Leader for teaching and learning technology and teacher librarian under Dr. Dianne Yee's governance, my role allowed me to assist in the SMART goal development with the Social Studies department. The new Alberta Social Studies curriculum uses the inquiry-based learning process and requires students to learn how to access information. All students in grade 10 classes were given a pre-test covering topics related to information literacy and gathering. Each class came to the library learning commons for the actual teaching orientation of literacy skills related to information seeking. Students were exposed to the online school catalogue, print and non-print resources, electronic databases, issues around plagiarism, bibliography and copyright. The students demonstrated strategies in reading, writing, listening, viewing, interpreting and processing information to answer questions, solve problems, discover new information and select pertinent information related to completing a learning task. Each student wrote the post-test after the completion of the inquiry-based learning project outlined in the next paragraph. Results were compared, and students were found to have improved their test scores.

In addition, three teachers and I collaboratively developed a structured inquiry-based project on the topic of multinational corporations for grade 10 Social Studies classes. This project demonstrated how well the students were able to apply the information literacy skills taught in the orientation. The teachers and I selected appropriate print and non-print resources for research and aided in the formation of the essential questions as well as how to access the information. Teachers and students learned how to access the online school catalogue using key word searches, electronic online databases using a Boolean search, pertinent websites on the world-wide net, how to evaluate these websites and reference tools to develop a bibliography. The project asked students to choose a multinational corporation and to form an opinion/conclusion based on their research to decide if they would support the chosen multinational corporation by purchasing stock or buying their product. Students were asked to identify the ways their opinion was influenced by their research. They could present their information using a variety of formats and technology. Student engagement and discussion increased due to the personalization of learning.

Other instances of support of SMART goals occurred with the English and Second Languages departments. Frequently, classes came to the library learning commons for book talks and selection of reading materials. Classes doing research came for database orientations on a specific topic. As Learning Leader, I prepare a project specific orientation, which highlights the use of the various databases. The Science department asks me to demonstrate the use of the databases for the career component of their curriculum.

As Learning Leader, it is important to "provide a leadership role in information literacy and work collaboratively with classroom teachers to ensure that information literacy skills are integrated effectively into the instructional program"(Canadian School Library Association, 2003, p. 7) Research clearly indicates that "the development of student competence in

information literacy skills is most effective when integrated with classroom instruction through collaborative planning and teaching by the teacher-librarian/ teaching and learning technology leader and the classroom teacher"(p. 7).

In order that teachers feel comfortable in trying a project "outside their comfort zone," it is important that the Learning Leader demonstrate approachability and flexibility without judgment for help with curriculum and technology. Thus, teachers will venture out of their comfort zone and "try out" new methodology. An example to the application of this concept is the planning and assistance offered collaboratively with a Biology 20 teacher. The teacher incorporated the content of a unit on photosynthesis by asking students to write a song using Garage Band (an application program on MAC desktops which acts as music composition software). I reviewed the criteria and helped teach the technology component. This activity engaged students in a collaborative learning environment, gave them access to new technology, and required a novel creation of factual content, which personalized their learning. Quiz results demonstrated that students had retained content effectively when they were able to create their own way of remembering it.

As Learning Leader, my position allows me to influence administrative decisions. A new mandatory course in grade 10, called Innovative Technology, is being planned for next year at Lord Beaverbrook High School. With the potential to include information literacy skills and inquiry-based learning in this course, the Career and Technology Studies Business department was approached because they would be developing the technology modules. Students need to be consistently prepared to access, interpret, and analyze information critically, using information appropriately and respectfully.

As chairperson of the school technology committee, my Learning Leader position allows for integration of curriculum and technology needs. Part of the mandate was to facilitate the implementation of SMART Technology throughout the school. This involved initiating discussion with the curriculum departments and teachers, promoting the advantages of using SMART Boards and SMART Response software.

The school technology committee functions well because its members influence the purchasing decisions and determine the in-service needs and training required to implement the technology. An example would be supplying appropriate technology (computers, Netbooks, LCD projectors, SMART Boards, SMART podium and document cameras) to each department. Appropriate maintenance to ensure long term usage of the equipment, is important in the budget allocated to the technology committee. Working with our IT specialists ensures the network functions properly, software is installed, preventative maintenance takes place, and new hardware replaces the old. The technical expertise of the IT specialists enhances the use of technology. The library learning commons staff is proficient in maintaining both print and non-print resources, trouble-shooting technology problems and serving the school community by providing resources. Having this staff in close proximity is essential to meeting the needs of students and staff.

Significant professional development is fundamental to this Learning Leader position. Networking with school district colleagues exposes me to the latest developments in technology appropriate to the classroom and the latest in print and non-print resources. Contact with ICT vendors and collaborative negotiations allows for cost-effective purchasing of hardware and software and electronic online databases.

A Final Perspective - NETS•A and Information Literacy Leadership

In 2009 ISTE updated their Technology Standards and Performance Indicators for Administrators to create the five categories: Visionary Leadership, Digital-Age Learning Culture, Excellence in Professional Practice, Systemic Improvement, and Digital Citizenship. These updated standards provide clear guidelines and support for information literacy leadership in our secondary schools, and they resonate with our work. As Learning Leader and Principal we have sought to "inspire and lead development and implementation of a shared vision for comprehensive integration of technology to promote excellence and support transformation throughout the organization" (ISTE, 2009, p. 1). We have attempted to "create, promote, and sustain a dynamic, digital-age learning culture that provides a rigorous, relevant, and engaging education for all students" (p. 1). We have promoted "an environment of professional learning and innovation that empowers educators to enhance student learning through the infusion of contemporary technologies and digital resources" (p. 1). We have provided information literacy "leadership and management to continuously improve [our school] through the effective use of information and technology resources" (p. 1.) And finally, we have attempted "to model and facilitate understanding of social, ethical, and legal issues and responsibilities related to an evolving digital culture" (p.1).

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Coming Together for Learning
A Journey of Transformation and Success

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INTRODUCTION

The purpose of the following narrative research is to communicate the events and experiences that led to the changing role of the teacher-librarians of the Thunder Bay Catholic District School Board (TBCDSB). In simple terms, I will retell the story of transformation and success that has created renewed interest and excitement in our school libraries. Throughout this paper, this journey will be referred to as the Library Project. Three significant events contributed to this transformation and they are library automation, collection development and a modification to the teaching assignment of teacher-librarians. The participants of this project include eleven teacher-librarians and three instructional leaders representing fifteen schools in the K-6 elementary panel. For the purpose of this paper, the time period in question takes place in the school years 2008-2009 and 2009-2010. This is the account of how the teacher-librarians of the TBCDSB came together for learning.

RATIONALE

Prior to the onset of the Library Project, I would describe the physical and human conditions of the libraries of the TBCDSB to be no different than any others around the country that had been neglected for decades. This neglect took the form of aging technology and collections, as well as insufficient staffing. Although there were no Canadian studies at the time of Ken Haycock's writing (2003), he brought a Canadian perspective to the problem of declined spending in Canadian school libraries with the warning that the future of our students was in jeopardy and we were on the verge of a crisis. His report offered many recommendations for the funding of school library collections, staffing and administration. In one of his most influential statements Haycock (2003) recommends:

> That Ministries of Education and school boards recognize the key elements of effective school libraries and their effect on achievement; clear program and role definition; collaboration with colleagues; flexible scheduling; emphasis on literacy and information problem solving; and required training. (P.39)

Over a decade ago, Keith Curry Lance became recognized for his landmark studies in the United States that linked effective school library programs with student achievement. Known as Colorado 1 & II, Alaska, Pennsylvania and Illinois, (Lance & Loertscher, 2001) these studies proved that "there is growing evidence that to cut LMC funding and

effectiveness is to strike a blow at progress currently measured by academic achievement!" (Introduction v). These findings were not statistically verified by Canadian studies until April 2006 when the Ontario Library Association partnered with Queen's University to collect empirical data for their first study, followed by the second study in 2009. Data collected from EQAO testing was considered over a five-year period in the study done by the Ontario Library Association (2006) and the findings indicate "there has been a steady decline in the percentage of students who reported that they like to read. At the same time, there has been a steady decline in the percentage of elementary schools with teacher-librarians." (p. 5). It would be accurate to assume that the teacher-librarian greatly influences the students' reading interests within the entire school community.
The Ontario Library Association (2006) made the following recommendations to the Ontario government as follows:

1. Immediately update the education funding formula salary benchmarks, so that funding for school libraries can be spent on school libraries; and
2. Develop policy to ensure all Ontario students, regardless of the size of the schools they attend, or their geographic location have the access to well-stocked and professionally staffed libraries. (p. 6)

It would appear that the evidence and recommendations from both studies from Queen's University were given serious consideration by the Ministry when it was demonstrated that student achievement was at stake. The climax of this story occurred in 2008 when the Ontario Ministry of Education announced dedicated funding for library staffing and library books for all publicly funded schools in Ontario. It was determined by the TBCDSB Trustees to channel these funds toward the improvement of school libraries with three solid initiatives. The first initiative was to implement library automation, followed by improving and updating library collections and lastly, incorporating professional development and training for the teacher-librarians.

Listed below are five themes that have been identified resulting from this research.

1) Recognizing the Need for Change
2) Creating a Teacher-Librarian Professional Learning Community
3) Transforming School Library Programming
4) Reflection and Implications for Practice
5) Moving Forward by Embracing the Vision

These five themes will become the steps that will describe the transformation that occurred in the Library Project. To appreciate the incredible success story that the teacher-librarians of the TBCDSB have experienced as they came together for learning, I invite you to relive their journey by taking the fist step.

STEP # 1 - RECOGNIZING THE NEED FOR CHANGE

Prior to 2009, teacher-librarians employed with our board worked in libraries with outdated resources, inadequate card catalogue systems and were providing planning and preparation time for classroom teachers. This meant that in the 1/2 time teaching assignments, there was only enough time for students from K to grade three to visit the library. We realize how this became a serious issue of access because the junior students were excluded and received no level of service from the teacher-librarian. According to the

UNESCO School Library Manifesto (1999), "School Library services must be provided equally to all members of the school community, regardless of age, race, gender...or school status". Although teacher-librarians were still employed in our schools, they were not being utilized to their full potential and the benefits that a qualified teacher-librarian could provide within a school were unknown. Consequently, the value of such a position was definitely underestimated and misunderstood. In Ken Haycock's article, (as cited in Asselin, Branch & Oberg, 2003) this misconception is described with extreme accuracy:

> Although there are more than forty years of research to support the notion that teacher-librarians affect student achievement, this information is almost unknown outside the school library community, and even then it is known only by those who have professional qualifications, belong to professional associations and read professional literature. (p. 65)

As the Library Project began to develop, a critical decision was made for all teacher-librarians to become members of the Ontario School Library Association under the umbrella of the Ontario Library Association. This was significant as it brought cohesiveness to our group and a sense of belonging when the teacher-librarians came together for learning in the form of a professional learning community.

STEP #2 - CREATING A T-L PROFESSIOAL LEARNING COMMUNITY

Pursuing Graduate Studies in Teacher-Librarianship has provided me with a wealth of knowledge on the topic of collaboration, inquiry and research and teacher-librarianship, but having the knowledge without advocating and sharing the knowledge is not enough to move ahead. For change to occur, I needed to demonstrate leadership and share this knowledge with my colleagues and administration. I organized a resource kit that I believed contained the best of my resources from my graduate studies to date. The content of this kit includes American and Canadian research studies that demonstrate the value of quality school library programming and other pertinent reference materials. This information was enlightening to the decision makers and made a strong defense for the investment of teacher-librarians and school libraries. The result of this has been that I have become instrumental in planning and facilitating a plan for change.

As the 2009 school year came to an end, a new beginning became reality with the announcement that the teacher-librarians would be taking part in their own professional learning community starting in September 2009. Along with that, I would be part of the leadership team for developing the content and structure. What made the circumstances of this announcement more exciting was that the T/L's would no longer be required to deliver planning and preparation time as part of their teaching assignments. This certainly was the best news we had ever heard as teacher-librarians!

In the PLC strategic plan, the TBCDSB mandated that the structure follow the model that was developed by the OSLA entitled *School library program: Teacher-librarian +classroom teacher=student achievement* (2005). In order to run the PLC effectively, a reference book was required. The text that was chosen upon my recomendation is entitled *Toward a 21st Century School Media Program (2007).* This text provides the information that is essential for developing the desired PLC program as the content coincides with the mandated structure. It was decided that the leadership team would take one planning day per month for preparation and another day for delivery, at which time all teacher-librarians would be

in attendance along with any special guests and speakers. Literacy Resource Teachers, Information Technology experts and book company representatives would be invited to share their expertise in the PLC. Now that we had the structure and resources in place, the only issue remaining was to bring everyone together with a manner of passion, pride and a common purpose. As previously noted, the TBCDSB purchased a group membership for the Ontario Library Association. In doing so, members receive the *Teaching Librarian* magazine to keep them informed and in touch with the issues that concern teacher-librarians and libraries. In keeping aligned with our faith, we have adopted St. Jerome's Prayer of Libraries and Librarians to begin each of our PLC meetings. (see appendix A) This prayer has seriously affected our thoughts and feelings regarding the impact that books and libraries has had on humanity through the passage of time.

STEP #3 - TRANSFORMING OUR SCHOOL LIBRARY PROGRAMMING

Collaboration

The collaborative role of the teacher-librarian is key and is the most important component of the position. Collaboration directly influences the climate of the entire school community as relationships are built and partnerships are developed between students, parents, teachers and administrators.
To ensure that teachers and teacher-librarians are able to successfully collaborate, there must be structured time set aside for this to take place. Doiron & Asselin (2005) stated that:

> "Teachers and teacher-librarians may use a curriculum development process called Collaborative Program Planning and Teaching. This is an excellent concept for establishing a collaborative relationship but for this to happen, the teacher-librarian needs to be available to the teacher on the teacher's planning time.

This sentiment is further validated when Haycock (as cited in Asselin, Branch & Oberg, 2003) states:

> Collaboration of this type depends on the availability of both the teacher-librarian and the teacher to plan and work together. It thus cannot be the role of the teacher-librarian to provide the teacher's preparation time or the critical element affecting student achievement is lost. (p. 66)

Currently within the Library Project, teacher-librarians no longer provide preparation and planning time. Timetabling has been developed to include formal and informal collaboration and combination of fixed and flexible scheduling. We are starting with a fixed schedule for primary students to ensure that they continue to appreciate the experience of how important reading for enjoyment can be. The scheduling for junior grades is moving towards flexible to allow additional collaborative efforts between teachers and teacher-librarians. This will enable them to take on larger projects with classroom teachers that require more sustained time in the library for inquiry and research and use of the computer lab.

Literacy

There have been a number of initiatives brought forward during The Library Project. The three focus areas that have been developed in the literacy category are in training,

resources and reading programs. Throughout the PLCs, traditional literacy training has played an important role in our learning. The Literacy Resource Teachers from our board have given informative presentations on balanced literacy, big ideas for critical pathways, and the use of graphic organizers that support classroom teachers in their programming. At every PLC either a read aloud or a book talk is done as these two techniques are so much a part of what teacher-librarians do on a daily basis in their libraries. This is how we create magic and light fires for our students as they develop their own reading habits. All T/L's are encouraged to take part at staff meetings by engaging in read alouds and book talks. We know that reading reflects on how well a student will perform in all content areas so it is imperative that we engage all students in reading for enjoyment. In doing so, it is of utmost importance that students be able to find "just the right book". For this to happen, the library must be organized in a way that encourages easy accessibility that in turn will motivate all levels of readers to find what they need and want. Graphic novels have become part of every library for this reason and these books are always in demand.

A major advancement in this journey took place in collection development. A team was assembled to research picture book titles that were relevant to such things as social justice, environmental citizenship and in our case "Catholic Virtues in Action". Also included were books that were effective for teaching the different elements of reading and writing strategies. Every elementary school now has these books in their libraries. It has been a great support to the teachers and teacher-librarians as they work through their TLCPs and share these picture books with their students. By establishing a list of core picture books that would be placed in every library as teacher literacy resources has provided continuity between schools.

New to many schools this year is that they are participating in the Ontario Library Association's "Forest of Reading". This reading program promotes Canadian authors and illustrators, which is something that our students need exposure to. In the K-6 elementary panel, the first program is Blue Spruce for grades K-2 followed by Silver Birch Express for grades 3-4 and Silver Birch for grades 5-6. There are ten picture books in Blue Spruce; five titles each of fiction and non-fiction in Silver Birch Express, and ten each of fiction and non-fiction in Silver Birch. A workshop was held on how to run a successful Forest of Reading program. It was the expectation during our project that teacher-librarians order the Forest books to build their library collections while participating in the reading program. The students have enjoyed completing activity books and going to the OLA website for web-based activities. Ways to enjoy the Forest books are endless and the best part is that students get to vote for their favorite book. The winning books are announced at a spectacular harbour front celebration in Toronto to conclude the Forest of Reading in June.

Information Literacy

Information literacy is a topic that we will explore next year as we continue with the teacher librarian PLC. There is an urgent need to focus on Information Literacy in our fast paced information world. Asselin et al (2003) state, "The major learning outcome for the school library program is to develop students who are information literate" (p. 4). In order to appreciate the benefits of teaching Information Literacy, it is essential to provide the following definition according to Asselin et al (2003).

An information literate citizen:

- Works independently and collaboratively to solve problems

- Analyses information critically in all its formats and in all media contexts
- Applies information strategically to solve personal and social problems
- Makes decisions based on accurate and current information
- Uses information and communication technologies
- Respects information sources and diverse perspectives
- Honours intellectual property and privacy rights
- Appreciates the aesthetic qualities of various creative and scientific expressions
- Communicates effectively and expressively using a variety of information and media formats. (p. 5)
-

It is quite evident that to become information literate, students are required to develop the skills to be problem solvers. Being information literate prepares students in their journey as life-long learners. The Ontario Ministry of Education and Training (1995) states "Information literacy is the key to helping students use learning throughout their lives as a way to solve problems, act ethically, plan for the future and prepare for change" (p. 4).

The Inquiry and Research Process allows students to construct their own personal understanding of the world in which they live. As Donham et al (2001) state: "Inquiry takes students out of the pure format of the textbook and rote memorization into the process of learning from a variety of sources" (p. 1). The inquiry process is powerful in the fact that it gives students ownership of their learning and freedom to ask their own questions. The motivation to learn is validated when students find the answers to their own questions. Donham et al (2001) stress this fact when stating that students need to "go beyond finding facts to create their own understanding at a deeper level" (p. 10). Inquiry and research is based on the constructivist theory of learning. It activates higher order thinking skills as students continuously construct and reconstruct new information based on previous knowledge. This is the area in which students lack the ability and skill. "[This] process of construction is an active ongoing process of learning that continues throughout life" (Donham et al p. 12). It is paramount that teacher/librarians advance to new levels to improve the learning experience of students. According to Koechlin & Zwaan (2002) "[Students] need skills and strategies to help them explore and determine their information needs, access appropriate data, process the data that they have acquired and communicate their new understanding to others" (p. 1). It is important that students be taught these skills in elementary school as Spalding (2006, October 23) reports that "elementary schools have just been decimated by budget cuts" and a secondary school teacher complained, "students come to [her] without basic research skills" (A4). The Ontario Ministry of Education (2004) recognizes the importance of inquiry and research skills when they give acknowledgment to the Ontario School Library Association's four-stage inquiry model.

> The Ontario School Library Association (OSLA) studied a wide range of literature and research in the fields of information and science and information studies and identified the following four stages as being common to all models of inquiry and research. **Stage 1**- Preparing for research; Stage **2** – Accessing Resources; **Stage 3** – Processing Information and **Stage 4** – Transferring Learning. (p. 36)

The inquiry process is critical to student success and lifelong-learning. The Ontario School Library Association (1999) established that:

> Students need the fundamental skills and knowledge of inquiry and research to be information literate. Information literacy is a prerequisite for success in all subjects

> of the curriculum, for preparation for work and further education and for lifelong learning. (p. 16)

The Ontario Ministry of Education (2004) agrees when they affirm that "Many educators have found that student learning improves when schools adopt a consistent model of inquiry and research across all grades and subjects" (p. 36). The teacher-librarian plays an important role in adopting the model of inquiry and research. Not only does this model benefit students, it provides the teacher-librarian with a tool to ensure program accountability. Farquharson (2005) believes " it inspires library media teachers to pursue excellence by utilizing research and research technologies to improve their own library program" (p.39). Incorporating action research into the library program provides the teacher-librarian with a method of reflection and evaluation to maintain methods of best practice. Inquiry and research is vital to library programming because it is so closely related to collaboration with classroom teachers. It is usually in this capacity that brings the two together.

The Ontario Ministry of Education (2006) recognizes the importance of information literacy and the connection to teacher librarians when they state in their Language document that:

> The school library program plays a key role in the development of information literacy and research skills. In collaboration with classroom or content-area teachers, teacher librarians develop, teach, and provide students with authentic information and research tasks that foster learning. (p. 30)

In order to support the teacher-librarians in teaching information literacy and the inquiry process to students, our board has purchased a resource entitled *Imagine the Learning: Elementary Research Success @ Your Library (2006).* This resource won the IASL-Link Publication Award for 2007 from the International Association of School Librarianship. We are looking forward to using this resource in our PLC when the focus of the topic becomes information literacy.

Information and Communication Technologies

Information and communication technology has become an area of great interest and advancement this past year as we have progressed through the library project. We have experienced progress in software, data base usage, and Web 2.0 tools but the greatest impact has been the implementation of library automation in all schools. In keeping with the 21st Century, we have enjoyed state of the art computer labs with capabilities for an entire class to be connected to high speed Internet for the past several years. In contrast to that, our libraries were managed with obsolete card catalogue systems. It just made perfect sense that if we were going to move forward with our library services, it was imperative to acquire an automated system.

L4U Kelowna Software was chosen as the automation system for our board. In the first phase, which took place in 2008-2009 all training for teacher-librarians on the L4U software was fulfilled followed by book processing. Some library collections were easily converted electronically but the majority required manual conversion, which meant every book, needed to be processed individually. A library technician was hired to assist with this

task and conversion still is ongoing. The next phase (2009-2010) saw the continuation of processing with the addition of moving into circulation. The amazing part for students is they are now able to search online, at any one of the computers within the school network, for books that are located in their school library. This certainly represents progress as it is bringing students and books together, in new meaningful ways, using technology.

Experts from our IT department have conducted workshops on assistive technology and the use of Ministry funded resources including Knowledge Ontario. We have been exposed to Learn 360, which is a database where educational videos can be searched then downloaded. This has opened a whole new world for the teacher-librarians, as they can be more resourceful in their schools by sharing this information with their teachers. We have explored WEB 2.0 tools such as Wikis, Blogs and Podcasts and are in the preliminary stages of developing our own Wiki. The TBCDSB is in the process of developing a plan for the use of information and communication technology as we move into the 21st Century with so many technological advances and devices. The inclusion of Smart boards, iphones, ipods, and ipads will be given serious consideration as we search for ways to keep our students engaged in learning. The students of this generation have been born into a digital world and have not experienced their world without it. We as educators need to face the challenge of integrating that world into their world at school. Our library project has initiated this challenge. The TBCDSB will be taking this into the future with the development of policies and curriculum to ensure that our students learn in a safe, engaging, educational environment in this age of technological advancement.

REFLECTION AND IMPLICATIONS FOR PRACTICE

We have experienced great success in our Library Project over the past two years. In looking back, we have become reflective practitioners analyzing our steps to find out if the changes have made a difference for teacher-librarianship. Without a doubt, the libraries, teacher-librarians and all who have been involved with this project have benefited. Library automation in itself was an important step forward, but it also had other surprising benefits for the teacher-librarians. Collections were weeded and along with that, library spaces received face-lifts as shelves were rearranged to make them more functional. In general, the libraries began to look alive and inviting. They became spaces where students and staff wanted to spend more time. Ultimately this will have a great impact on student achievement and learning.

This journey of transformation is not only seen in the physical space, but it has affected the hearts and minds of all who visit the library and most of all the teacher-librarians. Through the PLC our positions have been validated and we have built a strong professional network as we collaborated with each other and with other professionals within our schools and board. No longer are the teacher-librarians living unsupported on their own separate islands. We all have moved on to the continent. This is what I call our "coming together for learning" - for our learning and our students' learning.

MOVING FORWARD BY EMBRACING THE VISION

It has been demonstrated throughout this paper that the Library Project of the TBCDSB has truly been a journey of transformation and success. Our journey is not over as there is still much to accomplish with the vision of the new library document that was launched this year at the OLA Super Conference. It is evident though, that this project has already fulfilled much of this vision by converting library spaces, staffing and programming. We are focused, as this project will continue in the 2010-2011 school year and we centre our attention on information literacy. This will take us to the next stage in the vision that will transform our library spaces into a "learning commons".

CONCLUSION

It is my hope that you have been able to relive the experiences of how the teacher-librarians of the TBCDSB came together for learning and transformed their libraries and roles for the benefit of student achievement. The success of this project would not have been possible without the support from administrators, superintendents, trustees and the director of the TBCDSB. When Dr. Klinger (2009) and his research team were evaluating school libraries in Ontario, they stated that none of the libraries were given a level 4. "What differentiates Level 4 programs from Level 3 is that they have systematic administrative support at the school, school board, and provincial levels, both in funding and policy". (p.28) On the basis of that rubric, I would evaluate our Library Project as a level 4. What has been accomplished here at the TBCDSB, when all parties have come together for a common goal is summed up profoundly by Haycock (as cited in Asselin, Branch & Oberg, 2003) when he states that:

> School libraries, with qualified teacher-librarians, which operate in partnership with the province, the district, administrators and teachers, ... make a difference to student achievement - and that *is* the bottom line.
> (p. 72)

Appendix A

St. Jerome's Prayer for Libraries and Librarians

Blessed Jerome, patron of libraries, pray that our library may prosper as it serves God through the written word.
Pray that the materials contained therein bring our readers closer to God and to one another in God.
That it be protected from theft and damage and disaster.
That all souls be welcomed and respected.
That it never lose its focus as an instrument
for the spread of God 's Word.

Blessed Jerome, patron of librarians, pray for those who work with books for God, that their labour be always a suitable offering to God through service to man.
That their work be pursued with diligence and love, and that they be guided in right decisions and use of resources.

Blessed Jerome, pray especially for our readers,

that they be inspired in the knowledge and love of God
through the materials prepared by librarians and provided by libraries.
Remind all who work with libraries and all who use them that the highest end of all learning is in the love of God and their neighbours.

Gracious Lord in heaven, hear our prayers and the intercessions of our patron St. Jerome. Grant that all who work in and for your libraries be inspired by the skill, scholarship, dedication, and tireless love of God shown forth by our blessed patron.

Accept your people of the book as humble servants and their libraries as agencies of your purpose.
Let them be found worthy to serve you always.

Amen

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The School Library as Community Centre

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The borderline autistic girl laughs out loud as she reads a Manga book. Two students come in looking for bus tickets; four others want Bristol board, paper, scissors and glue; several others need old newspapers for an assignment; one needs a note to get back into class; the office calls to see if a student is in the library instead of class; another student is wondering if being bi-sexual is okay; one wants to talk about today's news; another is hoping that we found a cell phone; "Can you look over this paper—it's due next period"; "Do we have a colour printer?"; "How do I photocopy two sides?"; "The file with my essay has disappeared, can you get it back?" -- the list goes on and first period hasn't even started yet.

The school library, while designed to assist students and staff with curriculum assignments, does far more each day than simply satisfy the needs of the curriculum. The high school library is a gathering place, a safe-house, a refuge, a hiding place, a place of answers, a social centre and again the list goes on. Because none of these functions can be assessed by any form of standardized testing, there is no way of showing the true value of a school library. For this reason, the library is often misunderstood and seen as an easy target of budget cuts.

The purpose of this paper will be to show that teacher-librarians must fight even harder to make the school library the hub of the school. While all our efforts may be in vain, what we do has more value than administrators would like to admit. For the students, for the time left that we may have, we must make the library central to their high school experience.

When I was appointed Library Department Head over 20 years ago, the principal asked me how I liked retirement. The role of teacher-librarian is easily one to be envied. We read books and do some things with the students. How hard can that be? We have no marking and far fewer classes to prepare for, so to our peers, we have it made. In some ways we truly do. We are not tightly bound by a standard curriculum; we can only help students if they use us properly, and best of all we do not have marking. However, we do have the obligation to make the school library a vibrant, happening place where students want to be. For this reason, we often have to go beyond our contracts and put the students first.

When I first went into the library, I was also teaching English. One day, one of my students came to see me to hand in an assignment. To do so, she had to walk to the centre of the library. The look on her face made it clear that she had never ventured this deeply into the library before. "Look at this place", she said, "It's crawling with browners!" My job was to "de-browner" the library and make it not just an okay place to be, but somewhere students wanted to come to.

If the library is to be the hub of the school, the trick would be to get kids to come in. Once in, a number of delights should await the students. However, they have to physically come in. One of our first steps was to keep the library doors open at all times. This seems like a simple thing, but it speaks volumes about the welcoming aspect of the library. Sometimes, the effort to open a door is enough to deter a student who has never gone in before. Often a student will come near the entrance and seems to waiting for the invitation to come in before actually doing so. We do that daily and sometimes the offer is accepted. With the doors closed, we would not be able to see what is going on outside the library.

I wanted to make the library a place where students have to come whether they initially want to or not. Our school insists that the locks be purchased from the school. I suggested to the main office that we be the place where students buy their locks. While this is a pain-in-the-neck job, it gets all the grade nines into the library early so the library staff gets to meet them and hopefully show that we are a fun bunch of folks. As many Grade 9s cannot figure out how to work the combinations, the library staff gets to save the day and the first encounter is a good one. We also house the combinations to all the school locks, so when a student forgets his or her combination (which happens quite often) they come to us.

I suggested that those students with first period spare should call the library their home room. As a result, all guidance appointments, report cards, timetables for those students are delivered to the library. We are the only place in the school that gives change. We are the lost and found. We distribute yearbooks. As Graduation chair, I am the information source of all things graduation. I have made the library the place to find answers. I also compose the daily PowerPoint presentation that runs over the school television announcements, so I have good general knowledge of the goings on around school. I want the library to be the place where the students come for information. If we do not have that information, we will find out. So coming to the library just makes good sense. The trick is also to get them to stay.

Years ago, we started playing music in the library. Each day has a theme: Monday, blues; Tuesday, classical/instrumental; Wednesday, vocal; Thursday, world and Friday, Jazz. I am amazed at how the music generates discussion. This ranges from, "What is this garbage?" to "I thought I knew music until I heard Miles Davis in here". We have an extensive and eclectic music collection and everything we play can be signed out. Music is crucial to students. Many like to explore new musical areas and we can provide for most except contemporary. They know that already. However, on many occasions, we will play cds that students have brought in from home. One student is working on a compilation of African pop songs so we can play it. As I love to discover new music as well, the students have given me some very interesting musical leads. The new musical *Fela* would be meaningless to me had not one of our Nigerian students introduced me to Fela Kuti. When we play his music, the students always comment.

In order to appeal to a large range of tastes, we have subscribed to many magazines. Some might say too many, but the magazines get a lot of action. Ranging from *Mad* (which is still pretty funny) to *The Economist*, we try to satisfy all tastes in between. Many are for curriculum use, but just as many respond to student interests. Again, students have often suggested magazines for us to order. If appropriate and not too expensive, we will try to add their request to our list as well. The most recent additions include: *The Source, BBC Classical Music Magazine* (with a cd each month) and *The Atlantic*. We are constantly putting magazines away, so we know they are highly used. We use fine money to purchase the less academically related magazines, so the students are basically buying themselves the more fun magazines.

Manga is a popular area that I have little patience for. A comic book fan from the 60's, I see the new trends in graphic works as a huge diverging from what my purist sensibilities will allow. However, the activity of our graphic works materials is astounding. We cannot buy enough to keep the students happy. This interest transcends gender, culture, age and ability level. The mildly autistic girl, who either goes to class or comes to the library, does nothing but read these books. In fact, it is because I heard her laughing while she read that I realized these books have potential. That was several years ago. She graduates this year and we can talk freely—as freely as she is able and I credit this to having the books in the library. We always make a point to tell her when new books have come in--although she seems to know in advance. Other students, former Goth girls, have been bringing in their Manga books for us to purchase. The graphic works section has been a huge hit for many of this year's grade nines. They have no hesitation coming into the library as they can see the collection from the door.

We do not allow eating in the library. While this is growing trend in public libraries, high school kids are still kids and are not the best at cleaning up after themselves. With the ban on eating, we still have to go around and clean up what looks like the remains of full course meals. When I tossed one student out for eating in the library, our library technician found out later from the student, that she hates eating in the cafeteria because she has few friends and eating alone there calls attention to her loneliness. I still do not want to have an open policy on food in the library, but her comment has made me wonder how many other students come to the library because they are alone. Now, when I toss, I do so more gently.

Our library is staffed by three of us: a teacher-librarian, a library technician and a library secretary. We each have different things to offer the students. Both can talk of books that I do not normally read, but the students do. One can talk to the girls about their nails or hair and the girls respond in kind. I cannot engage in this kind of discussion as it is neither safe (these days) nor interesting for me to do so. However, these students have someone with whom to connect. For some this is an important connection point and at times, the conversation moves from that to something that concerns them. Once the door is open a little, students will ease themselves inside.

The library has to be a safe house where students know that they will be listened to and the staff cares about them. I am not at all a sports fan, but I make it a point to listen to the day's sports highlights so I can carry on a conversation with students who live and breathe sports. Often I get caught not knowing what I am talking about and the kids get the chance to correct or inform me. For some, life exists for sport. One of our star football players—soon to graduate has just this year adopted me to help him with his essays. A scholarship student, he is a delight to work with and at times, we have moved from his assignments to academic counseling. He has been scouted by two schools and is having difficulty deciding. I would never suggest one over the other, but hopefully by my listening, he will be able to decide for himself.

So often the discussions move from the school assignment to matters closer to their hearts. Family problems, school problems, dating problems, personal issues—all find their way to the surface when we have the time to listen. When our daughter was in high school and was relating a particularly difficult day, I asked her what she wanted me to do. To my shock she said, "I don't expect you to do anything. I just want you to listen". That has stuck with me and so, for the most part, as the stories are told, we listen. In a school of over 2000, there are so many students who need someone to listen. In the library, if staffed properly, we have that ability.

We watch friendships develop in the library. Sometimes we play a role—especially if a student new to the school could be paired up with one of our library regulars. Most times, students gravitate

towards each other and do not need us. However, we have to provide the environment where the students can gather to work or at least pretend to work. For this reason being open before and after school is essential. Often, long after the final bell has gone, the library is full of students. Daily, when it is time to close, we have to ask students to pack up and leave. There is nowhere else in the school for kids to gather—unless they are attached to a school team or club and under the supervision of a staff member.

Having a varied collection will also bring students in to the library. Despite what is said, kids love to read new and interesting books. True this cost money, but a good collection is essential. Once, years ago, a student put on a puppet show during a school assembly. It was fantastic and I asked her where she learned puppetry. She said that she was bored one day and found a puppetry book on the library shelf and was hooked. My office is filled with origami projects ranging from lucky stars, through paper flowers to an incredible snowflake or star (I'm not sure). The origami books were very popular at the beginning of the year and many students were engaged. These books found the students and even though they are graduating this year, it was still a big deal for me to put up their work for display. Of course, these will stay in my office long after the students are gone.

A few years ago we put an aquarium in the library. It is not large and a student is looking after it during the school year and takes it home for the summer. Daily, students come in just to say hi to the fish. When another student brought us some guppies from his home tank, I overheard one student tell another, "Oh, Casper has some new friends". We did not name the fish. Her friend was not at all puzzled as she clearly knew who "Casper" was. The more things we have in the library, the more connections we can make. I've had the hardest students wax eloquently about their own fish. A surprising number of kids have aquariums at home. I wonder what would happen if I bought a parrot?

Volunteers are essential to the school library. In Ontario, students are required to earn 40 hours of volunteer work as a condition of graduation. The library is the perfect place for a grade 9 student to volunteer. Working in the library will give the student experience for when he or she is looking for a paid position in the community, but it also sells the library to the general public. These students can be ambassadors for the school library. Often students, who begin as library volunteers, stay for their entire high school years working well beyond the required 40 hours.

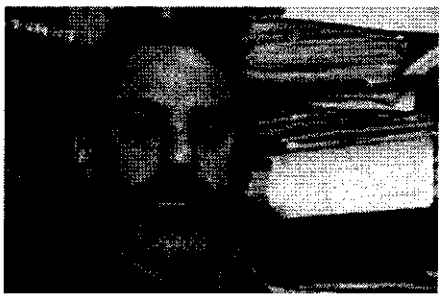
To access the computers in our school, students need to use a password. After the first week of school, new students have to go through me to get access to the school computers. I simply send the request to our IT department, but it gives me a chance to get to know the new students. On occasion I have taken them on a tour of the school. Many of these students are coming to our school with their own story, so the transition will take some work. One of these students told me at the end of her two years, she could not have made it through without my help. That surprised me as I did not do anything special that I was aware of. She said I was always there when she needed help. Had she not said, I would never have known. Which leads me to wonder, how many other students do we not help along the way?

Making the school library the hub of the school is difficult work. Our library is unlike any library in the movies or on television. While I could put my hair in a bun, I don't think I've ever said, "Shhh!" to anyone. There is a great deal of noise and activity, the music is playing and the kids are able to come and go as they please. The computers are always in use and sometimes for school activity. Students come in and ask for other students by name: "If you see Sally, tell her I'll be in the caf" assuming we know who the speaker is and who is Sally. The expectation is that we do. Sometimes we do. Regulars who suddenly disappear from the library or students who seem to be spending an

unusual amount of time in the library, we will call Guidance about. Often there is a story there too, and by acting, we were able to nip something potentially bad in the bud.

Student success is key to everything we do. Success goes far beyond academics and we see that every day. A student who is unhappy, lonely, broken, frustrated, or hungry cannot succeed in class. They need a place where they can go and think or talk to whomever they can. Sometimes it is us, but often it is each other and they need a place to do that. If we do things right, the library can be that place for all students.

Biography



Frank Loreto is a teacher-librarian at St. Thomas Aquinas Secondary School in Brampton Ontario. He has taught in Walkerton, Haileybury, Brantford, Rainy River and Brampton over the course of 30 years. Getting more and more tired of the politics that insinuates its way into education, he is not at all tired of the students. In fact, time has gone so quickly that he is now teaching the children of former students. That is not a bad thing.

An English teacher at heart, Loreto seems to thrive in the library environment as he finds everything interesting—except Mathematics and other number related subjects. This he makes clear to his students, so they know better than to waste their time asking him for help. In other areas though, he is looking up information on things long after the student who has made the request has gone back to class.

Loreto is proud to have brought automation to the libraries in his school board as well as pioneering CD-Rom technology and laughs at the letter he wrote to a past Director of Education wherein Loreto states that this Internet thing will have some potential and that the Director might want to come and see it. He wonders now how we ever survived without.

Loreto remembers when the school library was staffed by 3 teacher librarians, a library-technician, a library secretary and an audio-visual technician. Now, it is a teacher (no longer a department head) and in another year, a library technician. The golden days of school libraries seem to have passed. However, the need for quality school libraries is even more essential now than ever before. He is saddened that the powers-that-be do not understand that and has made it his mission to try to get them to wake up. It is a hard wall, but his head is harder.

Able to retire at anytime, Loreto plans to keep at this until it is no longer fun. There are still many things to learn and who knows, maybe the right student will come along who can make Mathematics comprehensible. Until that day...

A photo of me taken by a student in my office: Notice how the papers to my right seem poised to attack. The whole office is like that. That line of white to the left of my head is made up of confiscated dice. I never said our kids were angels!

It was a dress-down day otherwise I would have been wearing a shirt and tie.

Knowledge Building

From Transmission to Transformation
Re-Framing Teaching and Learning for the 21st Century

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Midway through her Grade 8 year, our daughter was bemoaning the fact that she had to study for a test in Geography. This may sound like a typical response from a young teen – but consider the context. Nikita is a bright student with a curious mind. She works hard to excel in all that she does, and she displays a genuine love for learning. Yet when faced with another test as a measure of her learning, she sagely remarked, "I will spend all this time studying, I will do fine on the test and then forget most of the information in a couple of weeks. This is a waste of time!" Nikita's frustration was not in having to invest time in learning, but rather the investment of time that would lead to little enduring learning. To excel on the test, she had learned she needed to memorize vast amounts of information but was seldom called upon to use this information to create new knowledge or to solve meaningful problems. Nikita's angst, expressed by countless others in a myriad of ways, can be witnessed across North America as youth increasingly find traditional means of assessment and in fact targets of assessment disconnected from the digital and global world in which they live. Her comments reflect the inherent limitations of transmissive teaching – it often fails to engage and motivate and although some children demonstrate success at retaining information long enough to write a test, too often the learning has little transformative impact. The comments also underscore the premise that when students are engaged in learning through critical inquiry, education is far more likely to have a transformative impact.

Transformative Learning

What is meant by the term "transformative learning?" What is the role of the teacher in creating a transformative learning experience for students? Transformative learning occurs when the learner's thinking and perceptions of the world and their place in it are altered as a result of the acquisition of new knowledge. For this to occur students must integrate new knowledge so that it becomes a part of themselves allowing them to make connections and use the new knowledge to deepen their understanding of themselves and their world. The Transformative Learning Centre at the Ontario Institute for Studies in Education describes transformative learning as "experiencing a deep, structural shift in basic premises of thought, feelings, and actions. It is a shift of consciousness that dramatically and permanently alters our way of being in the world.... transformative learning makes us understand the world in a different way, changing the way we experience it and the way we act in our day-to-day lives." [1] For learning to be transformative, students must be willing participants with a vested interest in the learning process. This does not occur when they

are fed mounds of information to be memorized and accepted without challenge. Teachers have a key role to play in creating a transformative learning experience. They must encourage discovery by problematizing the curriculum and inviting students to examine their personal assumptions, explore a range of perspectives and possibilities and test them all for validity. In so doing, teachers contribute to creating a community of thinkers in which inquiring minds are nurtured. Classrooms of inquiry help to ensure meaningful, transformative learning occurs as they engage students in the examinations of beliefs and assumptions and the formation of new ideas that emerge from the synthesis of new learning and past experiences. M. Carolyn Clark (1991) suggests that transformational learning involves three key dimensions: psychological (changes in understanding of the self), convictional (revision of belief systems), and behavioral (changes in actions).[2] Although it should not be presumed that students will be transformed each day by each lesson, when learning occurs through critical inquiry each day contributes to the transformative impact on the learner. The cumulative effect of engaging students in critical inquiry is to heighten awareness of oneself within a global context, one's beliefs, and the impact of one's actions on self, others and the world around us.

Transformative Learning Occurs When:

- students **integrate new knowledge** so that it becomes a part of themselves allowing them to **make connections** and use the new knowledge to deepen their understanding of themselves and their world.
- students are **willing participants** with a vested interest in the learning process
- students are **encouraged to engage in inquiry**
- critical inquiry contributes to a **heightened awareness of oneself** within a global context, one's beliefs, and the impact of one's actions on self, others and the world around us.

Nurturing inquiring minds in a digital world

Each successive generation looks with alarm upon the youth of society. Consider the familiarity of the following refrain: "*The young people of today think of nothing but themselves. They have no reverence for parents or old age. They are impatient of all restraint. They talk as if they alone knew everything and what passes for wisdom with us is foolishness with them. As for girls, they are forward, immodest and unwomanly in speech, behaviour and dress.*" Although the phrasing may differ the essence of this statement has endured for centuries – in fact this quote is attributed to the ancient Greek scholar, Socrates! In many ways, the essence of childhood and adolescence has remained constant over time as have effective pedagogical practices. Yet, in some important and profound ways, children growing up in a digital world are different. Martin Westwell, Director of the Flinders Centre for Science Education in the 21st Century in Australia, succinctly captured the nature of change in the developing brains of children in his statement: "Are kids today different than kids 20 years ago? Well, yes, they are. Because the world is different, their brains have wired up in a different way".[3] A few of the key differences in the brains of children who have grown up in a digital world include that they are:

- ✓ more visual than previous generations, learning better from visual sources than text-based information
- ✓ faster at switching tasks and more comfortable at multi-tasking

- ✓ great scanners - they learn to develop filters to sort out what is important and what is not
- ✓ part of a 'participatory culture' in which over 50% of teens create media content and over 30% share content - contributing to "distributed cognition"[4]

The advent of new technologies and the consequent impact on the wiring of the brains of children present educators with both new opportunities, and challenges. For example, although children are better than adults at using visual clues as filters to determine what is important or not, relying solely on visual clues may lead children to be misguided by savvy web designers - they need to be able to override visual clues and zoom in on key words to help them handle the massive amounts of information they encounter in a media-saturated world. Similarly, although children are more comfortable than adults at rapid task-switching, they too often believe they can effectively multi-task (juggle several tasks at once). Psychologist, Faith Brynie notes "Multitasking is not efficient, nor does it get more work done faster. Quite the opposite. One task interferes with another, so everything takes longer because the brain loses time--and accuracy--in repeatedly shifting its effort."[5] Jordan Grafman, a cognitive neuroscientist echoes Brynie's concerns: "The more you multitask, the less deliberative you become; the less you're able to think and reason out a problem and the more you're willing to rely on stereotypical solutions. You can't think deeply about a subject, analyze it, or develop a creative idea if you are constantly distracted by an e-mail message, a new site, or a cell phone call." [6]

So, what do these changes mean for education? The core of good teaching remains constant - students being invited to uncover ideas, solve meaning problems, construct new knowledge, and, as Linda Darling Hammond notes in *Preparing Teachers for a Changing World*, ensuring high levels of "instructional discourse" that encourage students to ask questions, discuss ideas, and comment on statements made by teachers and other students.[7] What has intensified is; the need to ensure good teaching is provided to all children in an increasingly complex and global world; that classrooms both respond to and capitalize on the nature of the learner in a digital world; and, that schools prepare students to survive and thrive in a knowledge economy. Critical and creative thinking has always been a part of educational jargon but it has too often been poorly understood and generally reserved for students perceived to be academically strong. This very notion that some children will benefit from invitations and expectations to think while it is beyond others has been to the detriment of both children and society. In 1933, John Dewey challenged the idea of some subjects being more suited to academic rigor when he wrote: "It is desirable to expel...the notion that some subjects are inherently 'intellectual', and hence possessed of an almost magical power to train the faculty of thought... any subject ...is intellectual in its power to start and direct significant inquiry and reflection."[7] More recently, Nel Noddings stressed the importance of putting thinking at the core of all subjects: "We can give students opportunities to think well in any course we offer, provided the students are interested in the subjects discussed. Algebra can be taught thoughtfully or stupidly. So can drafting, cooking, or parenting. The key is to give students opportunities to think and to make an effort to connect one subject area to other subject areas in the curriculum and to everyday life."[9] it is now imperative that nurturing thinking move from one of many educational objectives to underpinning all that we do in schools. Don Tapscott, in his book *Grown Up Digital*, observes: "The ability to learn new things is more important than ever in a world where you have to process information at lightning speed. Students need to be able to think *creatively*, *critically*, and *collaboratively*." [10] If schools are to continue to be the solid

foundation upon which students build their lives they must embrace the challenge to re-think how teaching and learning take place so that students become active participants in inquiry, uncovering ideas, solving problems and working collaboratively to create new knowledge and novel solutions to old and new challenges facing society.

Why critical thinking is an educational imperative in the 21st century

Obviously, the idea that the goal of education should be to assist students in becoming critically thoughtful citizens is not new, but achieving the goal has taken on greater urgency as the complexity of the world increases. University of Toronto political scientist, Thomas Homer Dixon, has argued in his book *The Ingenuity Gap*, that as the complexity of the world increases, so to does the need for greater ingenuity.[11] He defines ingenuity as the application of skills and ideas to solve practical technical and social problems. Ingenuity, he contends, does not need to be solving problems through new or original ideas. The use of existing knowledge, skills or ideas in a new way to solve a problem is, by Homer Dixon's reckoning, ingenious. If we accept the relationship between increased complexity and the need for great ingenuity as suggested by Homer Dixon, then the need for schools to be incubators of critically thoughtful minds becomes obvious. Being able to identify, define, and solve important problems or issues which face humanity from a local to global level, will determine the extent to which our society will succeed in its response to the challenges faced now and those yet to come. Only by providing students with the intellectual tools to be effective critical thinkers can we move the phrase "life long learners" from the morass of over-used educational jargon.

Advocates for purposeful education, whose goal has been and is, to create critically thoughtful problems solvers and decision makers, stretch back many centuries. Swiss educator, Johann Heinrich Pestalozzi argued teachers must develop rather than to try to implant knowledge in children. In 1847, Canada's Chief Superintendent of Common Schools, Edgerton Ryerson, wrote: "If the mind of the child when learning, remains merely passive, merely receiving knowledge as a vessel receives water which is poured into it, little good can be expected to accrue. It is as if food were introduced into the stomach in which there is no room to digest or assimilate, and which will therefore be rejected from the system, or [sit] like a useless and oppressive load upon its energies."[12] More recently Matthew Lipman (Thinking in Education, 2003) noted that traditionally in virtually all cultures, students are sent to school to learn basic skills and content, but are seldom encouraged to think.[13] Despite a spirited debate over the place of critical thinking in education neither its supporters nor detractors have been very clear on what exactly it means to think critically. As Roland Case (2001) has noted: "The idea of critical thinking is not new. For decades - no, for centuries — it has been recognized as an important educational goal by practitioners and theorists alike. Curriculum documents and learning resources in all subjects at every level of school recommend that students be taught to think critically. Despite this long-standing (and, at least, formal) commitment, the extent and manner of teaching for critical thinking is disheartening. Many studies document the enormous preoccupation with transmission of information and rote application of "skills", and how little of class time is devoted to thinking. It is a rather depressing irony: critical thinking is much valued and yet inadequately addressed."[14]

Despite decades of debate and numerous curricula that highlight the importance of thinking, classroom practice has not sufficiently embraced a paradigm shift in teaching and assessing that significantly improves children's capacity for thinking. Richard Paul (1990)

offers this critique of the effectiveness of traditional teaching practices on nurturing thinkers:

> Didactic lectures, extensive coverage of content, and mindless drill combine with student passivity to perpetuate the lower order thinking and learning students have come to associate with school. When students do not actively think their way to conclusions, when they do not discuss their thinking with other students or the professor, when they do not entertain a variety of points of view, analyze concepts, theories, or explanations from their own points of view, actively question the meaning and implications of what they learn, compare what they learn to their experiences, tackle non- routine problems, examine assumptions, or gather evidence, they do not achieve higher order learning. They end their schooling with a jumble of fragmentary opinions, rigidly understood procedures, and undisciplined beliefs. They gain little knowledge or insight. They are at best trained, not educated, not critical thinkers or persons. As a result, their adaptability, their capacity to learn on the job and in their personal and civic lives, is severely limited. Their ability to mature intellectually and morally, their capacity and motivation to learn, is stunted.[15]

So, what is the research telling us? In essence, for schools to remain relevant in the 21st century and for societies to address the increasing complex challenges they will face, schools must focus on making learning a transformative experience with critical inquiry at the core of their work. When critical thinking is used as a methodology of teaching, students are more engaged, the learning is deepened and students are better prepared to survive and thrive in a rapidly changing world.

What is critical inquiry?

The uncovering of curriculum occurs only when students investigate purposeful questions that present meaningful problems or challenges to address. Although some students may enjoy gathering information, students' depth of learning and engagement are greatly enhanced when tasks require students to think critically at each step of the way. If we expect students to become critical thinkers and problem solvers then we must be sure that our classrooms challenge them to solve problems and embark on personally relevant journeys of inquiry. This is unlikely if students are fed mounds of information with little opportunity to pose their own questions and challenge their emerging conclusions. Even well planned, interesting, colourful and relevant lessons can fail to involve students in thinking meaningfully about the ideas. Active involvement requires that students digest and make personal sense of the ideas, and not simply listen and recite or read and record.

The term 'critical' inquiry has been used here to signal that inquiry is not essentially the retrieval of information but a process of reaching conclusions, making decisions and solving problems. Critical inquiry is an attempt to infuse a spirit of exploration throughout the curriculum. At the heart of critical inquiry is a provocative question or challenge that arises out of the interplay of asking, investigating, reflecting, creating and sharing. With these multiple entry points into inquiry, teachers are better able to differentiate instruction to meet the varied needs of their learners. For example, students may respond to a challenge by first reflecting on what they know, sharing initial thoughts and ideas with peers and then

carrying out an investigation. Others may choose to investigate, share their preliminary findings, reflect on what they know and do not know, and then return to further investigation. Similarly, once students have completed their investigation, opportunities to share and reflect are integral parts of any creative process.

Building competencies, removing barriers

In a recent conversation with a colleague regarding teacher professional development, I suggested that we consider exploring how to support students in the various elements of inquiry to which he replied it was too much of a de-constructivist approach. As the conversation continued, the colleague proceeded to discuss that for students to engage in inquiry they first had to be able to ask good questions. Later he noted that students needed to be able to judge credible from less credible sources and eventually he sheepishly acknowledged that he had in fact de-constructed inquiry. This anecdote illustrates a common problem with teacher efforts to teach through what they believe to be an inquiry-based approach. For students to be engaged in meaningful inquiry they need to have the intellectual tools that support quality thinking. Expecting students to ask powerful questions, gather credible and reliable sources, analyze and interpret information and use information to draw conclusions, solve problems or render assessments without a focus on developing thinking competencies both frustrates and hampers student learning. Much of the frustration teachers experience when attempting to engage students in critical inquiry stems from the fact that students often lack the required concepts, attitudes, knowledge, criteria or strategies – in short, they lack the tools needed to do a reasonably competent job. It is often assumed that mere repetition will improve students' reflective competence. No doubt some will improve by repeatedly trying to figure things out for themselves, but most will be more successful if they are taught the requisite tools for the task. Work by The Critical Thinking Consortium addresses this shortcoming by offering the notion of intellectual resources or "tools" to explain the development of good thinking.

Intellectual tools for quality thinking

Although the specific tools depend on the nature of the challenge facing the thinker, promoting critical thinking is largely a matter of helping students master an ever broadening repertoire of five types of intellectual resources:

- *Background knowledge:* knowledge of relevant information about a topic that is required for thoughtful reflection.
- *Criteria for judgment:* knowledge of the appropriate criteria or grounds for judging the reasonableness or merits of the options presented by a thinking challenge. To think critically is essentially to engage in deliberations with the intention of making a reasoned judgment. And judgments inevitably are made on the basis of criteria.
- *Critical thinking vocabulary*: knowledge of the concepts and distinctions that are needed to think about the challenge. Although other tools also refer to concepts, 'critical thinking vocabulary' refers to concepts that expressly address distinctions foundational to thinking critically—for example, knowledge of the difference between 'conclusion' and 'premise', 'cause' and 'correlation,' or 'cause' and 'effect,' and knowledge of various informal fallacies.

- *Thinking strategies*: knowledge of procedures, heuristics, organizing devices, algorithms and models that may be useful when thinking through a challenge. Good critical thinkers draw upon a great variety of strategies to work their way through the challenges facing them.
- *Habits of mind:* commitments to the range of values and principles of a careful and conscientious thinker. Although more commonly described as dispositions, we prefer the term 'habits of mind' to refer to the intellectual ideals or virtues that orient and motivate thinkers in ways that are conducive to good thinking, such as being open-minded, fair-minded, tolerant of ambiguity, self-reflective and attentive to detail.[16]

Transformative assessment

Our assessment practices have the power to engage, inspire and support students in reaching their fullest potential – in short, used effectively, assessment can help to ensure teaching and learning is a transformative experience. For learning to have a transformative impact it must challenge students to examine their preconceptions, to explore multiple perspectives and to use knowledge to innovate. When assessment is used to punish, cajole, and intimidate it contributes to students becoming disengaged, disinterested and ultimately underperforming. Despite an overwhelming body of evidence from brain research that shows fear and intimidation shuts down learning, it continues to be too often used as a means to encourage students to complete their work. Let's be very clear – fear and intimidation are not motivators and do not provide the foundations for learning. When assessment is grounded in how we will punish students for lack of compliance, we fail to seize on the true potential of assessment to support student learning. To ensure learning is transformative teachers need to shift their assessment targets from the accumulation and recall of isolated facts and ideas that tend to stifle collaborative, critical and creative thinking, to framing assessment around big ideas that transcend the particular topic and support students in understanding important concepts.

In August, 2007 Sarah Scott's provocative article "Do Grades Really Matter" in *Maclean's* highlighted the growing body of research that shows a disconnect between success in school and success in life. Building on the old saying: "School is a place where former A students teach mostly B students to work for C students" Scott cites numerous individuals who did not thrive in school but went on to become highly successful in life prompting her to question whether or not grades should matter. The answer is, of course grades matter, but only matter if what we assess matters. Scrambling to improve test scores when the test itself is flawed can lead to a great deal of wasted energy by teachers and undermine student confidence when they fail to excel in writing a standardized test. Assessing students' ability to recall information reflects an education system mired in the past. Definitions of literacy go beyond word recognition, being historically literate encompasses more than an awareness of past events and being mathematically literate requires learners go beyond the simple use of formulas. For children to thrive in school and beyond they must be able to access, understand and use information to solve meaningful problems. Our assessments need to focus on the discernment used to select information, the analysis used to understand information and the creative and innovative ways information is used to create new knowledge and offer novel solutions to complex problems. If grades are to matter to all learners, they must be more than an inventory of terms, facts and isolated ideas students have assembled. Only when grades reflect a student's ability to interact with ideas and solve

meaningful problems in an authentic context, will grades carry the significance for all learners that we hope them to.

Assessment in a classroom of critical inquiry

Inquiry-based classrooms look and sound different than traditional classrooms. To begin with, the focus on student achievement shifts from the accumulation of isolated bits of information to the use of information to create products or solve problems. At the heart of inquiry is the posing of engaging, relevant and meaningful questions. Through the use of problematic situations students are invited to uncover the curriculum as they respond to critical challenges. Assessment of student achievement in this context focuses on the ability of students to make reasoned and informed judgments. While a demonstration of a knowledge and understanding of key terms, concepts and events remains important, in a critically thoughtful class students need to show they can identify relevant and accurate information when responding to a critical challenge. An observer of an inquiring classroom would notice students engaged in posing questions, assessing the validity of sources, weighing options and making reasoned judgments in light of clear criteria.

Assessment for learning plays an integral role in nurturing critically thoughtful learners. The five intellectual tools discussed above support students as they develop the capacity for critical thinking and success at conducting inquiry. These intellectual tools provide a focus for what students need to know and how assessment plays out in a classroom of critical thinkers.

Differentiation and assessment in a classroom of inquiry

In effective classrooms, assessment drives instruction. Knowing what students are to achieve, and how they will demonstrate it, should be the basis upon which daily instruction is planned. Differentiated assessment ensures that students with varying learning styles, interests and aptitudes are given opportunities to demonstrate their learning. The key to differentiated assessment is establishing clear targets, and not confusing methods with targets. For example, assessment targets might include student understanding of the "big ideas and concepts" being studied, an ability to conduct research, to think critically, and to communicate their findings and conclusions effectively, considering purpose and audience. If these were the assessment targets (or objectives) then a variety of methods could be used to assess student learning. Students could write a report, prepare a visual essay, create a bulletin board display with relevant images and captions, or deliver an oral presentation, and so on. Encouraging students to select the best method to demonstrate their learning is yet another way to shift the focus of learning from teacher to student directed.

Assessment tasks can further student learning and not simply measure it when clear targets are provided from the outset. Students receive frequent feedback, and they have opportunities to improve their work through revision, editing and polishing. Throughout these tasks, students need appropriate scaffolding to ensure success, and to encourage reflection on what they are learning. At some time this may require allowing students to "fail forward". Learning from their mistakes can often provide very powerful and lasting learning. But to have the confidence to fail forward students need to know that their teacher is available to support them as needed and that failed attempts will not negatively affect their final grade. This requires that teachers embrace the concept of "*assessment as learning*" and that they provide feedback and guidance but do not grade students on the

process of learning. Of course, at some point, students will need to demonstrate their learning through some kind of performance; and teachers do need to grade students on performances.

Conclusion

Critical thinking as a methodology of teaching creates a powerful learning environment for all students by placing meaningful, purposeful questions at the core of the curriculum. When students are engaged in critically thoughtful activities it changes the way they learn and the nature of evidence educators look for to assess achievement – there is a shift from the accumulation of isolated bits of information to the use of information to solve relevant problems, create products of value or to meet challenges. In fact, when both critical and creative thinking are properly understood, teachers and students see how ingenuity results from the application of skills and knowledge in a critically thoughtful manner. At the root of creative thinking is to create. Creativity is not a random generation of ideas but rather is guided by a purpose. A creative solution finds ways to use existing knowledge and skills in new ways to arrive at a solution that meets established criteria. Believing that simply encouraging students to "think out side the box" is sufficient to engender creative thinkers is at best simplistic and at worst dangerous. Thinking outside the box with no criteria to guide their thinking does not help students to arrive at plausible, feasible or even relevant solutions to the problems and challenges they will face. If, however, students are invited to solve meaningful challenges the five intellectual tools (Background knowledge, Criteria for Judgment, Critical Thinking Vocabulary, Thinking Strategies, Habits of Mind) can provide a powerful means to scaffold student learning. Focusing on the intellectual tools allows teachers to provide focused and targeted formative assessment and allows teachers to effectively use differentiated instruction to support a variety of learners. Building curriculum around a critical thinking framework helps teachers to focus learning on meaningful inquiry that engages students and provides a effective means to support their learning in ways that create a transformative learning environment.

Endnotes

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Critical Thinking and the Learning Commons

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In an April 2010 article, "Libraries Reinvent Themselves to Serve Digital-Age Students," Thomas K. Grose examines the role of libraries today in that most pragmatic of disciplines, engineering education:

> Libraries - especially those catering to today's tech-savvy engineering students -are so last century, right? ....don't rule out libraries yet- they're more popular than ever before and are configuring themselves anew to remain relevant. The Grainger Engineering Library at the University of Illinois, Urbana-Champaign, had 750,000 visitors last year, 50 percent more than 15 years ago, when it had newly opened. .... Libraries are prospering by adjusting to the times, providing students unique and valuable services. "We have seen a sea change in technology," says William Mischo, head of the Grainger's information center. "Our philosophy is the library is a place and a function." ..... few students arrive on campus with the skills necessary to find their way through billions of bytes of research and reference materials. Librarians are there to guide them through those digital mazes and to teach them the skills needed to do it on their own (Grose, online.)

All of these successes, as William Mischo says above, depend on seeing the library as "a place *and* a function." [Italics ours] This new model of library as "Learning Commons" engenders a library that is a place containing a lot of bits and bytes: books in Dewey categories, databases, reference, dvds, podcasting and videocasting equipment, overhead projectors and whiteboards, group tables, individual carrels, and Google. In a school library, however, few students and few teachers know how to put these bits together on their own to create meaning. They think that is the teacher-librarian's job, not theirs. So, the challenge for schools and for the teacher-librarian is to educate students, teachers and administrators to work together to 1) examine the properties of new technologies to determine *appropriate use* and 2) to model pattern recognition and critical thinking in today's electronic environment.

To help libraries and schools to do this, the authors are suggesting that two tools learned from Marshall McLuhan can be very useful. The first tool is called "figure-ground analysis" and the second tool is an arts-based cultural mapping tool; both tools analyze the structure of a situation. We suggest that if teachers and teacher-librarians were to learn and model the use of these analytical tools school-wide, critical thinking and questioning would be easier and more fruitful for everyone in this age of information overload.

WHAT IS FIGURE/GROUND ANALYSIS?

These terms, adapted from Gestalt psychology, give a language to use in the study of media and perception.
Both *figure* and *ground* are products of human awareness: they do not exist apart from human awareness. At any moment, what one notices or pays attention to is, by definition, a *figure. Ground* includes all the other possible figures *at that moment.* (It does not include things to which one cannot pay attention, such as things going on across town.) *Figure* is the area of attention; *ground,* that of inattention. So *ground* includes everything that is present to one's perception, but which one does not notice consciously. Inevitably, one's attention will shift from one thing to another: as it does so, first one thing will become *figure,* then another.

When each new *figure* attracts one's attention, the previous one recedes into the *ground.* For example, while reading a book, one may be distracted by some music as a car drives by, return to the book, notice that the chair is uncomfortable, feel hungry, change the lighting and return to reading, and so on.

Figure requires that one pay attention; *ground* requires that one pay inattention. *Ground* is a matter of active ignorance. *Ground* is clearly much vaster than *figure*: *figure* may be 2-3% of what is present; *ground,* the other 97-98%.

Another word for *ground* is environment. *Ground* always provides the terms on which *figures* are noticed; *ground* is the way of seeing whatever is *figure. Ground* is *the key element* in shaping perception of whatever we perceive as *figure.* Every restaurateur knows this and so disposes the sounds and smells and lighting to provide a *ground* proper to the effect he wants to induce in his patrons. The food is the *figure.* The identical food in a workplace cafeteria has a vastly different taste. A baroque concerto played (live) in your living room or salon has one effect; played in a large concert hall, it induces a quite different response—and one alien to the expectations of the composer. This latter was a main reason, said Glenn Gould, why he abandoned the concert stage for the recording studio.

The arts use another word for *ground*--style: style is a way of seeing. When one band "covers" another's music, melody and lyrics remain the same (more or less); what changes is the orchestration and manner of playing the music. Such updating occurs exclusively in the area of style. The old song acquires contemporary relevance by being clothed in the new experience. One or another of Shakespeare's plays is occasionally presented in "modern dress" as a way to make it "relevant" to today's audience. The melody and lyrics, as it were, remain untouched—his language is sacrosanct—but the costumes and settings and staging are rearranged or updated (the style) to bring the whole closer to the present imagination and sensibility. In *The Curious Incident of the Dog in the Night-time,* Mark Haddon allows the reader to see and imagine the world about him as an autistic child sees and imagines his world.

Media are *ground* in two ways. Watching a film on TV, one ignores the TV. In a cinema, one ignores the theatre, the screen, and other patrons while attending to the film. Reading a book, one ignores the page, the book itself, the room, even the actual printed words and letters while one's mind looks at meanings and images.

Each new technology brings into play an entire environment (*ground*) of services and disservices without which it cannot function. The *ground* for the car is the road. Regardless what one uses the

car for, having cars means having roads and oil companies, air pollution, parking lots, tickets, and an immense service environment consisting of gas stations, repair garages, traffic cops and traffic light systems, pavement, suburbs, sales offices new and used, gridlock, insurance, and a complex, international manufacturing industry, etc. The *figure* is the single car, or even cars-in-general. The *ground*, then, is a service environment configured around the *figure*. These invisible environments are the *ground* for the *figure* of the car (the same is true for the Internet or the book) and they are the main source of change in the user and his or her culture. Their power to change culture inheres in their invisibility. It is no exaggeration to say that each new technology brings with it a *ground* that reshapes the culture of the user from top to bottom. In other words, each new technology brings with it a new culture, wanted or not.

The McLuhan/Innis hypothesis posits that the dominant medium in any culture shapes that culture more than any other factor:

> The railway did not introduce movement or transportation or wheel or road into human society, but it accelerated and enlarged the scale of previous human functions, creating totally new kinds of cities and new kinds of work and leisure. This happened whether the railway functioned in a tropical or a northern environment, and is quite independent of the freight or content of the railway medium. The airplane, on the other hand, by accelerating the rate of transportation, tends to dissolve the railway form of city, politics, and association, quite independently of what the airplane is used for (H.M. McLuhan, *Understanding Media,* Ch. 1, 2nd para.)

Elsewhere, he wrote:

> Obsolescence does not mean extinction. Quite the contrary. For example, handwriting has been "obsolete" since Gutenberg, and certainly since Remington, but there is more handwriting today than there has ever been. The word "obsolete" therefore is a *figure-ground* term and the situation of obsolescence is the result of some spectacular shift in the nature of *ground* which alters the status of *figure*. Thus, Gutenberg scrapped manuscript culture and elevated it, as it were, to a kind of art form. In the same way, the motor car has been obsolesced by the jet plane and is increasingly getting acceptance as an art form. The planet and Nature were obsolesced by Sputnik in October, 1957, and have become art forms also. Sputnik saw the birth of ecology, and art replacing Nature. In the same way, the book, more prolific now than ever, has been pushed up into art form by the electronic surround of information. The book had been *ground*, but has now been flipped into *figure* against the new electronic *ground*. In the same way, the entire hardware of Western industrialism has been obsolesced and, as Toynbee says, "etherealized" by the new surround of electronic information technologies. (H.M. McLuhan, "Reading and the Future of Private Identity," 8)

Nowadays, Cory Doctorow echoes McLuhan's observations as he discusses the new iPad: "The real issue isn't the capabilities of the piece of plastic you unwrap today, but the technical and social infrastructure that accompanies it." (Doctorow, online)

HOW DOES A PRINT CULTURE DIFFER FROM A DIGITAL CULTURE?

Or, the detached individual vs. the group participant (today's students)

Literacy and the library today exist in a *ground* that has produced some unexpected twists and turns. Let us consider several familiar indicators of these changes. Around mid-20th century, the

book assumed a new function in our culture: the coffee-table book is the book as furniture, an ornament to add a touch of class, not just a repository of information. At the same time (the sixties) that the coffee-table book made its debut, the public turned to high-speed reading as a way to enhance its involvement in printed material. Our culture has also been busy redefining literacy since the seventies. Around then, libraries began to re-imagine themselves as Learning Resource Centres. The transition from a print culture to what would become today's digital culture had begun. A commonplace at the time was "the generation gap"—a widespread acknowledgement that adults and their children inhabited very different worlds. Tom Wolfe wrote *The New Journalism* to point out that emphasis had quietly shifted from a "just the facts" approach in news-writing to one that emphasized feelings. Today's news reportage is blatantly less about the item and more and more about the feelings of those involved in the event; with the feelings and sentiments of the audience featured on newscasts and "talk" radio and TV. The experience has overtaken the factual report for the population at large.

At about the same time that news was retuning its effects on the cultural psyche, advertising presented us with the "lifestyle ad." Recognizing that the audience had shifted its preferences from those of consumers to those of participants, advertisers moved the *object* of desire to one side and emphasized instead the beholder's self-image and satisfactions—the beholder as part of a group of like-minded users. Lifestyle ads impart the experience of owning and using the product. The impartial observer, the traditional consumer of information, has clearly been displaced by the participatory group. The ancient world experienced the same transition, in reverse, from a deeply immersive mode of experience to one characterized by individual reflection and detachment.

By the time of Plato and Aristotle, the technology of the alphabet had produced well-documented effects on its Greek users. These included breaking the mimetic bond which the poetic establishment used to induce deep participation in their hearers and which produced prodigies of memorization. Plato saw *mimesis* as the enemy of rational discourse and, in *Republic*, attacked the oral poets of his day for using it. By *mimesis*, one could hear a poem once and be able to recite it perfectly for years thereafter. By deep mimetic immersion in the poetic experience, the cultural encyclopedia was conveyed and preserved from age to age. But *mimesis* was the opposite of detachment and the new world of abstract thought just emerging with the rise of philosophy and logic.

For the preliterate, *mimesis* is not merely a mode of representation but "the process whereby all men learn"; it was used by everybody for "knowing," via merging knower and known. That understanding survives in the maxim, "the cognitive agent is and becomes the thing known." Using *mimesis*, the "thing known" ceases to be an object of attention and becomes instead a *ground* for the knower to experience. It violates all the properties of the visual order, allowing neither objectivity, nor detachment, nor any rational uniformity of experience, which is why Plato was at pains in the *Republic* to denounce its chief practitioners. Under the spell of *mimesis*, the knower (hearer of a recitation) loses all relation to merely present persona, person, and place, and is transformed by and into what he perceives.

Eric Havelock devotes a considerable portion of *Preface to Plato* to this matter:

> You threw yourself into the situation of Achilles, you identified with his grief or his anger. You yourself became Achilles and so did the reciter to whom you listened. Thirty years later you could automatically quote what Achilles had said or what the poet had said about him. Such enormous powers of poetic memorization could be purchased only at the cost of total

> loss of objectivity. Plato's target was indeed an educational procedure and a whole way of life. (Havelock, 45)

David Booth shows the same mimetic process at work as educational procedure in our present-day world of multiple literacies:

> When students are inside the experience, needing to read and write in order to come to grips with the issues and concerns being discussed or examined, when texts are being interpreted or constructed as part of the learning process, then I can sense that a literacy event is happening. The young person needs not only to inhabit the words and images, but to see herself as a performer of what she has learned, representing and owning the learning. In effect, she herself becomes the literacy. And she reads and writes with her whole self, with her body, with her emotions, with her background as a daughter and student and citizen; she sits in school beside her family members, and she reads every text she meets alongside them, inside her cultural surround. Literacy is constructed through identity (Booth, 53.)

Booth is describing a culture of children fully immersed in their sensory world, one that their parents may find foreign, but which is increasingly a normal state today. Detachment and objectivity are alien to these post-literate children.

The Greeks, however, by putting on the alphabet, absorbed the technique of dissociation of sensibility. They invented the consonant and the phoneme and made each into complete abstractions. Neither the letter nor the phoneme has meaning. They were able to split inner (imaginative) from outer (verbal) experience, action from reaction, and the self from the group. The latter result we recognize as the detached, private individual with private aims and ambitions. (McLuhan, *Laws of Media,* Ch. 1*)* It was the readers in the act of reading who put on these dissociations as the basis of replaying and re-cognizing.

The printing press produced the reading public as a *ground* for the book. Electric media displaced the reading public and replaced it with the mass audience, which now displays many of the characteristics of pre-alphabetic *mimesis.* The mass audience is above all a group of people who experience the same thing at the same time, courtesy of electric speed. "Mass" is a function not of numbers but of speed. Digital media presently show other effects on the sensibilities of their users such as shortening of attention spans, as evidenced in preference for reduced sentence length and the reshaping of paragraph styles. Average sentence length today in published novels, for example, is half what it was at the turn of the twentieth century. The developed paragraph of seven to ten sentences (mid-20th century) has given place to much shorter forms in popular writing (newspapers, best-sellers), chiefly one- and two- and three-sentence paragraphs.

A series of one-sentence paragraphs allows reader and writer no aesthetic distance from the subject; everything so presented is in-your-face, in extreme close-up. (The usual one-sentence paragraph is for either of two general effects: transition between subjects or dramatic effect. A series, then, gives the feeling of breathlessness and speed, and feels very dramatic, qualities preferred by news writers; so it is no accident that the style is so frequent in newspapers, but now it features in everyday prose such as e-mail.) Further evidence of these changes in sensibility is clearly manifest in the everyday writing of e-mail messages and workplace correspondence, and in the use of Twitter.

Such shifts in prose style reflect a preference for ever-deeper involvement. The *figure* of the alphabet may remain the same but the *ground* experience reflects the change from the reader as consumer to the reader as participant. Studies in neurology in recent years have explained how this comes about.

In *Proust and the Squid*, Maryanne Wolf describes how the brain rewires itself to meet any environmental contingency. She writes:

> There are few more powerful mirrors of the human brain's astonishing ability to rearrange itself to learn a new intellectual function than the act of reading. Underlying the brain's ability to learn reading lies its protean capacity to make new connections among other structures and circuits originally devoted to other more basic brain processes that have enjoyed a longer existence in human evolution, such as vision and spoken language. We now know that groups of neurons create new connections and pathways among themselves every time we acquire a new skill. Computer scientists use the term "open architecture" to describe a system that is versatile enough to change—or rearrange—to accommodate the varying demands on it. Within the constraints of our genetic legacy, our brain presents a beautiful example of open architecture. Thanks to this design, we come into the world programmed with the capacity to change what is given to us by nature, so that we can go beyond it. We are, it would seem from the start, genetically poised for breakthroughs. Thus the reading brain is part of a highly successful two-way dynamics. Reading can be learned only because of the brain's plastic design, and when reading takes place, that individual brain is forever changed, both physiologically and intellectually. For example, at the neuronal level, a person who learns to read in Chinese uses a very particular set of neuronal connections that differ in significant ways from the pathways used in reading English. When Chinese readers first try to read in English, their brains try to use Chinese-based neuronal pathways. The act of learning to use Chinese characters has literally shaped the Chinese reading brain. Similarly, much of how we think and what we think about is based on insights and associations generated from what we read (Wolf, 4.)

Terje Hillesund echoes Wolf's findings:

> Undeniably, many young people are very good at processing and responding to simultaneous stimuli in a highly multimodal and interactive environment, filled with games, videos, music and social media, such as YouTube and Facebook. Young people often treat computers with great familiarity and use *Wikipedia* and Google as a matter of course. According to Kress *(Literacy in the new media age*, 2003), the new generation will certainly wire up the brain in new ways, developing skills that are beneficial in the media landscapes to come. Other researchers, however, are concerned that these multitasking skills may come at the expense of valuable abilities related to sustained reading (Wolf, 2007). Becoming a fluent reader — and especially an expert reader — also requires neurological wiring. It takes many years of practice and concentrated reading to develop vocabulary and decoding skills to such a level that time is given for inferences and reflections, that is to form the brain circuitry for proficient reading. Furthermore, reading-related combinations create added neural paths in the brain, positively affecting cognitive capacities (Hillesund, online).

In recent years, a new field called Media Ecology has been formed to examine these matters as well as the larger transformations undergone by cultures that adopt media new to them. Evidently cultures act in much the same manner as Wolf's description of the brain's responses: they rewire their components in response to environmental pressures. The response to sufficiently powerful

new media, such as we have seen in the last thirty years, is in effect a substantially new culture. Since these media, such as computers and satellites, have their impact on every discipline and aspect of everyday life simultaneously, we need interdisciplinary means of coming to grips with them. McLuhan's cultural mapping tool is such a device.

UNDERSTANDING WESTERN CULTURE

Marshall McLuhan's interdisciplinary mapping tool compares periods of western culture under several headings: preference for single or multiple points of view; preference for multiple dimensions of reality or single, visual reality; perception of time and space as continuous or discontinuous and centralist vs. decentralist organization. This comparison reveals two main types of media-generated cultures: a literate, or print-type of culture such as exists in the classical and renaissance eras, and a pre- or post-literate culture such as exists in the mediaeval and modern eras. The authors hope to show how useful this tool is for modelling and developing critical thinking.

Mediaeval western culture loosely covers the period from 450 (end of Roman Empire) to 1450 AD. During this period, approximately the same type of feudal culture existed throughout the British Isles and Europe. The art, music and literature of this period may be compared under the headings mentioned above in order to perceive cultural patterns.

Mediaeval art presents the viewer with a holistic, multi-dimensional and discontinuous ordering of reality. Even a historical artifact like the Bayeux tapestry (11th century) that purports to be an account of William of Normandy's victory over the English in 1066 demonstrates multiple points of view. Although the tapestry is about 70 metres long and half a metre wide, it does not tell a continuous story from a single point of view, left to right. Rather, the main events are in the centre of the horizontal tapestry while life goes on inside the top and bottom "frames". The frames, however, are not purely decorative borders; the *figures* change constantly and often "comment" on the main action, providing a *ground* - scenes from the ordinary agricultural life of the peasants abound in the frames, as well as some rather lewd images of naked men and women. A popular mediaeval theme, the shortness of life, appears early on in the tapestry where we see King Edward on both the day he is alive and the day he is dead. There is no chronological sequence here; rather, the order emphasizes the now-here-now-gone theme. First, we see Edward seated on his throne, being greeted by the returning Harold (Bernstein, pl. XXVIII); immediately following, the body of King Edward is carried to the church for burial (pl. XXIX); the next scene shows Edward in his castle, on the top floor - alive and talking, while on the bottom floor, he is dead and shrouded (pl. XXX). The figures are all presented in profile, two-dimensionally, and the servants ringing the bells in the funeral procession are much smaller than the figures of the nobles, indicating their lower social status (pl. XXIX). Thus, there is a spiritual and social dimension here, not just a visual dimension. So-called two-dimensional art is really multi-dimensional in its refusal to sacrifice everything to the purely visual.

As Harold is crowned king, the populace is seen watching (pl. XXXI); immediately, the populace turns in the opposite direction to see Harold listening to an omen-reader (pl. XXXII). In the top frame, there is now an image of Halley's comet and in the bottom frame, some grey, ghostly ships just like the ones that appear later coming from Normandy. Again, the frame is not a decorative frame, but a juxtaposed commentary on the main action. By accepting the crown, Harold breaks his vow to be William's man. The dire consequences of his treachery are here foreshadowed. There is no use of chiaroscuro or shadowing of one colour into another in mediaeval art. Renaissance artists used that technique to create a three-dimensional illusion. The juxtaposition of Halley's comet and

the ghostly ships with Harold sitting on his throne here is very sudden and dramatic - a flash forward, if you like. Time and space are discontinuous and the viewer must become involved to make the connections and construct meaning, just as in modern, surrealist art.

In Mediaeval music, the same multi-dimensional, discontinuous ordering of reality is present. In mediaeval music, polyphony was the order of the day. Many voices sang together, but not in unison. Each voice was distinct. Sporano, alto, tenor, bass - each had its own unique voice that resonated together with the other voices, was equally important and was in conversation with the other voices (counterpoint.) The old English round, "Sumer is icumen in", found in the Harley manuscript (London, British Library, online) is a well-known example. In this lovely spring song, the cuckoo sings loudly, the wind blows, the ewe bleats, the cow moos and the bullock and the buck fart noisily. The mediaeval mind had no problem with disparate points of view. Even more startling to the conventional mind is the fact that the musical notes have two sets of lyrics. "Sumer is icumen in" lyrics are written in black; Latin, sacred lyrics for use in a church service, are written in red. This was a common mediaeval practice. Discontinuous spaces, the sacred and the secular, are placed together with no apparent connection everywhere in the middle ages.

Mediaeval literature betrays the same sensibilities as the music and art discussed above. In *Beowulf,* an Old English oral poem written down probably in the eighth century, discontinuity is everywhere. *Beowulf* is a compendium of traditional wisdom, rather than a linear account of one hero's deeds. Thus, when Beowulf's bravery is mentioned, the poem suddenly flashes back and says so was he brave when he defeated Breca in a swimming contest and then recounts the entire episode of the swimming contest in great detail. This was not considered a "digression" by the mediaeval audience, but rather an example of traditional bravery juxtaposed with the present situation to help the audience understand. Often, these flashbacks and flash forwards are very dramatic, almost surrealistic. An example from the beginning of the poem occurs at line 82 (Klaeber ed., p. 4), where the building of a great hall called Hart House is described as rising up to the sky "heah ond horngeap; heathowylma bad" [high and horn-gabled; battleflames awaited it]. This flash forward occurs right in the middle of the line of poetry. OE poetic lines are made up of two half lines and often this half-line structure is used to dramatically juxtapose two different times or spaces.

Just so, Chaucer, in his *General Prologue* to the *CanterburyTales,* uses traditional juxtaposition to create his satire. The Cook, for instance, seems to be a fancy French chef who makes "poudre-marchant tarte and galyngale", until the next line reads, "Wel koude he knowe a draughte of Londoun ale." (Robinson ed., ll. 381-82) The guttural sounds humorously undercut his apparent gentility!

To conclude, mediaeval cultures are oral and juxtapose many different points of view, presenting a nonlinear (or digital) organization of reality. In feudal society, the same decentralist organization appears. Castles and their lords and peasants (who could not leave the property) were dotted everywhere, each one a unique centre of culture and governance.

CENTRALIZED GOVERNMENT CAME WITH THE RENAISSANCE

The Renaissance is loosely dated from 1450 AD to the early 1600's, but its cultural preferences lasted until the end of the nineteenth century. The authors will refer to this whole period as renaissance-style culture. This culture is characterized by a preference for the visual dimension of reality and the single point of view, as well as continuity of space and time. The printing press with its ability to reproduce exact copies of books, spread the rediscovered classical Greek and Roman cultures and their values once again, bringing about an upheaval in European culture. Individualism

was born of literacy (the ability to read and to make individual judgements.) These developments can be seen most easily in the visual arts.

In art, the illusion of the third dimension began with Giotto and ended with Picasso. John Constable's *Hay Wain*, 1821 (Constable, online) is typical of a renaissance-style culture. One can see exactly where the artist was standing in the foreground in order to paint this landscape. There is only one point of view here. The illusion of the 3rd dimension is created, substituting the visual for the holistic view of the middle ages. Here one can see from the place where the artist stood through consecutive planes, from the beach, through the reflections of the sky on the water, to the sunlight on the fields under the overhanging trees, back to the vanishing point on the horizon above the line of trees in the distance. Constable uses the light to guide the eye of the viewer. He also uses chiaroscuro to blend the visual planes, in a smooth, logical sequence from one plane to the next. For Constable, space and time are continuous and sequential. Seeing is believing.

In music, the diatonic scale system was fully developed in this period as a fixed pattern of intervals that includes 6 whole tones and 2 half-tones, adding up to an octave. All of these intervals are seen from one fixed point of view, the tonic; so, in G major, for instance, F is sharp. Hitting an F natural sounds "wrong" when playing the scale of G major: F is outside the single point of view of G major and Western ears have become accustomed to the fixed conventions of this scale system. In popular vocal music in the early 17th century, polyphony (many equal voices) gave way to homophony, a style in which a melody (one main voice) was supported by a bass line, a *ground* for the melody. This single point of view dominated until the early 20th century.

In literature, the novel form developed in the early 17th century, exhibiting a single point of view (that of the hero) and a plot that progressed in a linear sequence. *Don Quixote*, published first in 1605, is generally considered to be the first Western novel. Jane Austen's *Pride and Prejudice*, published in 1813, begins with the famous sentence, "It is a truth universally acknowledged, that a single man in possession of a good fortune, must be in want of a wife." This novel is written from the single point of view of Elizabeth Bennet, a sensible young woman whose attitudes are at odds with the superficial values of her society. The point of view does not change during the novel and the plot proceeds in a chronological sequence with lots of suspense right to the end and Elizabeth's marriage to the reformed Mr. Darcy. Austen's world, valued visual appearance at all costs and she satirizes this trait in her exaggerated attention to visual detail. Although Austen's novels are written in a space and time that is continuous, logical and sequential, her satire points out the actual differences between visual appearance and reality.

During the extended period from the Renaissance to the end of the nineteenth century, countries and their governments became centralized and established capital cities and national identities and cultures. Even in the new world, the United States adopted a "melting pot" approach to a single "American" culture, while Canada regarded itself as British. Marconi's first transatlantic telegram in 1901 blew nationalism out of the water.

THE RADIO TELEGRAPH COLLAPSED SPACE AND TIME

Every culture in the world could now be present at the same time, in the same space. News from Hong Kong and from Westminster was received simultaneously. Cultural differences were suddenly very obvious and questions and conflicts arose quickly. Within a few years, modern art, music and literature responded to the simultaneity created by this new technology. Mediaeval discontinuity and multiple points of view blossomed again in all the arts.

Modern western culture became digital once more. On the visual arts front, Pablo Picasso was the first to respond to the new culture with the *Demoiselles d'Avignon, 1907. (*Picasso, online*)* Visual representation disappears; cubism with its many points of view introduces the viewer to the discontinuity between the artistic nude and the streetwalker: beautiful model from one angle and street-savvy businesswoman from another angle. Mere visual appearance is banished by the many dimensions of reality.

In music, between 1907-1909, Arnold Schoenberg and his students, Alban Berg and Anton Webern, dropped tonality and composed music that was atonal or post-tonal, written outside of any scale or modal system. Once again, there are no "wrong" notes in this music and so it reflects the many points of view of the modern world all at once.

In literature, the poet T.S. Eliot abandoned continuity and verisimilitude for the first time in a poem written in 1910-1911, but published a few years later, "The Love Song of J. Alfred Prufrock." The essential confusion caused by the clash of ideas in the modern world where everything happens at once and where visual appearance no longer denotes reality is stunningly felt in the opening image of the poem: "Let us go then, you and I,/ when the evening is spread out against the sky/ like a patient etherized upon a table;" (Eliot, p. 11.) The romantic world clashes with the grimy reality of early twentieth-century London. Ten lines later, Eliot abandons the continuity of time in the poem and suddenly flashes forward with no warning to the narrator's destination, where "In the room the women come and go/ Talking of Michelangelo." (*Ibid.*) Here the tinny rhyme undercuts the aura of power associated with Michelangelo. Eliot, like Picasso and Schoenberg, presents so many dimensions of reality simultaneously that people often find him confusing. "But what a poem means," says Eliot, "is as much what it means to others as what it means to the author;" ("The Modern Mind," p. 541b) This is true of all the modern arts: the user creates meaning.

Since the beginning of the twentieth century, the effects of the telegraph have been multiplied by the invention of the telephone, networked television (bringing the world into everyone's living rooms) the computer and most recently, the worldwide web. The incessant invention of handheld devices such as the iphone and the ipad are increasingly turning the world into an oral and tactile global theatre, in which each person performs. The new electronic environment or *ground* promotes the decentralization of work, study, government, socializing, etc. Cultures, as already discussed, readjust their components to meet environmental pressures. Since technologies are being invented at a rate faster than ever before, it is imperative to study the cultures created and to respond critically; otherwise, society runs the risk of being blindly manipulated by each new technology.

MODELLING FIGURE/GROUND ANALYSIS

Teachers and teacher-librarians can model *figure/ground* analysis to help students think critically in all subject areas. The structure of any cultural situation or the effects of any technology become clear when *figure/ground* analysis is used. Just as a red *figure* cannot be seen against a red background, a cultural *figure* or a technology cannot be seen clearly against its usual or expected *ground*. However, if one changes the *ground*, the *figure* can be clearly seen, and if one removes the *figure*, the *ground* or environment can be clearly seen. For example, in an exploration of "what is beauty," a teacher-librarian or an art teacher might ask students to bring examples of a beautiful person to class. Pictures of *Vogue* models and rock stars will doubtless be among the figures collected. If the teacher cuts out the *figure* of the model from the fashion background and places the *figure* in a different *ground*, such as a poor village of starving children, is the model still beautiful?

Switch in as many different *grounds* as possible to see the meaning of the *figure* and the word "beauty" change. This is the method of all surrealist art.

One can also remove the *figure* of a technology from its usual *ground* to study the effects of that technology, i.e., the environment it has created. A recent, factual example of this technique is the grounding of all airline flights in and out of Europe due to the volcanic eruption in Iceland. Without the airplane, time slows down. The world returns to the railway era. One has only to read the newspaper to see the varied effects. The first two days people were taking enforced vacations, though some were unable to leave on vacation. By the third day, mozzarella cheese couldn't be shipped from Italy, as it would perish on the train or boat. What would the world do without pizza? Grocers and sellers of fresh produce ran out of stock. Would the world have to go back to canned vegetables and fruits? Leaders in business and government could not meet easily. Students and academics could not go to or get home from conferences. Billions of dollars were being lost by the airlines; their workers, sent home. Prescriptions drugs and vaccines were in short supply. If a catastrophe had occurred, could the military have arrived in time? The weaknesses of the global supply system created by the modern airplane became immediately apparent; normally, these weaknesses are in the invisible *ground*. Teacher-librarians and economics teachers could model *figure/ground* analysis to investigate this and similar situations. What would happen if the telephone or internet were destroyed? How would that affect business? the stock market? schools? universities? operating rooms? doctors' offices? what you eat for dinner? your friendships? support networks, etc.?

The military uses this technique of removing a *figure* from its normal *ground* to try and prepare for disasters, including terrorist attacks. The simulation of such a military exercise using *figure/ground* analysis would provide a rich learning task in any of the social sciences, as well as providing students with the opportunity for role playing.

The sciences too are an area where *figure/ground* analysis can be used effectively. In fact, ecology is another name for *figure/ground* analysis. Take a *figure* out of a *ground*; e.g., bees out of Ontario, and what happens? With no pollination occurring naturally, the price of produce would skyrocket. If it had to be pollinated manually; wildflowers would disappear and all of the animals and insects that depend on them. The invisible *ground* created by bees appears clearly, allowing scientists to see where human intervention might occur. Tracing these environments or *grounds* makes for a rich learning task at both primary and secondary levels, again including role-playing.

In the arts, *figure/ground* analysis can be applied at the level of the poetic line, the musical phrase, the colour palette: what happens when a *figure* is removed from any of these *grounds*? Switch *figures* and switch *grounds*. What happens? Highly sophisticated critical thinking can occur at this "micro" level.

MODELLING CULTURAL MAPPING

Cultural mapping is a complex type of *figure/ground* analysis in that one is comparing historical cultural patterns (*figure/ground* relationships) with a current cultural pattern in order to solve a problem; in other words, one draws an analogy. Looking at the *figure* of school libraries, for instance, one might ask why some school libraries are bustling and others aren't. Library users and their culture are the *ground* in which school libraries exist; so, attention has to be paid to that *ground*. In the 20th century, why did students come to school libraries? To look up information in books. Most people did not have adequate reference books at home. In the 21st century, how do students look up information? On the internet. How do students access the internet? Increasingly,

via mobile devices like the iPhone. The electronic environment has radically changed the culture of the school library's users. Many students feel they don't need to go to a library anymore. Everything they need is available on their iPhones. E-books, even library subscription databases are available for free without a password using the Gale library app for the iPhone. Everything is available everywhere, all at the same time. However, as teacher-librarians know, the amount of information available on the internet is overwhelming and is expanding at the rate of more than a billion pages per day. Students are lost when it comes to navigating that amount of information and are equally lost when it comes to thinking critically about the information. Teacher-librarians, of course, are the "value-added" feature of school libraries, able to show students and teachers how to navigate and process the information sea. But how to help clients who don't come to the library? The library has to be attractive to them. Cultural mapping can offer some help here.

What other culture exhibited this pattern of discontinuity of space and time, multiple points of view and a decentralized society? Mediaeval culture and social organization exhibited all these characteristics. As discussed earlier, mediaeval society was feudal and people lived, worked and played in small manors/villages or castles all their lives. Multiple dialects and even languages existed within a few miles of each other. Peasants were not allowed to leave their lord's property. The central "common" was the area where everyone met. It would have been land held in common by the villagers and was also where games and celebrations were held. It might have a common well or a brick oven. Today, school libraries are built in the centre of most schools and the new learning commons model is analogous to the mediaeval village common, a space to work and play and a repository of public resources. Libraries that are bustling seem to have a lot of space devoted to "common" activities rather than a lot of individual carrels devoted to silent reading (a model suited to the print-only library.) Looking to the mediaeval model should help school libraries redesign their environments for our electronic, social networking culture. Might that mean more worktable space for groups and less space for bookshelves? New technology even allows closed stacks with virtual shelf browsing (Grose, online.) Wireless service for student laptops and iPhones might be provided. Interactive whiteboards, data projectors, areas for video editing, class pods, art areas might all be included. Teacher-librarians are the master craftsmen to whom classes and students go for research help. Quiet reading rooms are now necessary. In the middle ages, the common also hosted games and celebrations; likewise, school libraries might function as galleries for student work, might have areas for relaxing or eating, and might even have areas for electronic games.

Teacher-librarians can model cultural mapping when helping classes with research. A social studies class studying urbanization may be helped by the teacher-librarian to see that the 20th-century, centralized city where people go "downtown" to work while living in specialized suburbs does not work in a modern electronic culture that allows multiple points of view simultaneously and the ability to live or work anywhere. Cities that retain a centralized organization and highway strip development end up like Detroit with a rotting core where no-one wants to go after dark. Most North American cities were built in the ground created by the automobile with its continuous road system and attendant culture. Again, teachers may ask how electronic technology changes the pattern of work and relaxation. If the electronic environment allows one to work and live anywhere instead of having to go to the same place as everyone else to work, then why would we not redesign our cities? Again, cultural mapping can be a help here, allowing the teacher-librarian to draw an analogy with mediaeval culture and its multidimensional, discontinuous patterns, as seen in the discussion of school libraries above. Might our cities benefit from a comparison with mediaeval cities? This would provide a rich learning task for students, allowing role playing. The teacher-librarian could provide pathfinders and actual displays of books or other resources detailing

mediaeval cities from Western and other cultures that display the same characteristics and could designate an appropriate work space for the class, real or virtual.

Based on his knowledge of mediaeval universities, Jason Rovito recently opened a bookstore in Toronto, in a year when many small bookstores had to close. Rovito has created a literary commons rather than just a bookstore. His space includes a publisher and a writing school as well as a bookstore and the opportunity to discuss literature. Business students could use this example to research other areas that could profitably be developed on the mediaeval commons model (*Toronto Star* 3 May 2010, B1,B3.)

The authors hope this kind of research and questioning will be generated by teachers modelling the use of the tools discussed. Both these tools, *figure/ground* analysis and cultural mapping, can give students a vocabulary with which to begin analyzing situations. They can be included in word walls and may be used to create anchor charts that assist students in the process of critical thinking.

With this in mind, the questions that always need to be asked by students are:

- what is the *figure* in any given situation?
- what is the *ground* in any given situation?
- what can the student learn about the *figure* by switching the *ground*?
- what can the student learn about the *ground* by removing the *figure* from the situation?
- will an examination of the *ground* enable the student to see where intervention in the *ground* is possible to improve the situation?
- what is the dominant technology in the culture being examined?
- what sort of culture does the technology promote?
- is the culture being examined a mediaeval or renaissance-type culture? (multi- or one-dimensional?, discontinuous or sequential? central or decentralized?)
- what characteristics does the given culture share with the historical culture?
- are other aspects of the historical culture missing or different?
- how can the student use the analogous historical culture to see what might improve the culture being studied?

SCHOOL LEARNING COMMONS: PLACE *AND* FUNCTION

Redesigning the physical space of the school library as learning commons will not pose unusual problems for teacher-librarians. It's important to keep up with the latest technology so that students will be attracted, just as it is important to keep the latest fiction on hand. It is also adviseable to use moveable furniture to keep up with the pace of technological change. That is not going to stop anytime soon. The virtual space of the commons also needs attention. Many students now access the library via mobile devices. Does your library website have a mobile version for small screens? Are all your resources available 24 x 7? Are your pathfinders posted on a wiki or a blog or Facebook? Do you have a Twitter feed for library news? Do you have online space to post student work? Can students post their own work? Can students use virtual workspaces while doing projects? Exploring the mediaeval analogy discussed above should generate lots of other ideas.

Redesigning the function of the school library as learning commons will be the difficult job. The teaching program will need to be expanded to include everybody in the school, whether or not they actually come to the library. Find out what is being done in those classrooms and set up small displays of resources for particular assignments all over the library. Set up virtual displays of resources on the library website or blog. Make sure the displays are interdisciplinary enough to

catch students' interest. (Think surrealism.) Use *figure/ground* language and ask provocative questions in your displays. In other words, model the use of the 2 tools described in this paper. Suggest role-playing as a research method. Students learn by mimesis, just as pre-literates did and they get very excited about it. Once students are excited, word travels fast. Vicki Davis (of *Flat Classroom* fame) recently talked to Dr. David Rose about passionate learning in the digital classroom as the key to learning today (Davis, online.)

Partnering with teachers and discussing assignments ahead of time is the preferred method of using the learning commons (but it should be open to all informally if there's space.) Set up an online portal page (use Netvibes or Pageflakes) for an assignment and discuss possible content with the teacher. Post the RSS feed from a topic search in one of your online databases. Every time an article is published on the topic, it will appear in the feed. Post a feed for the same topic from Google news. Post the feed from a student wiki in which students are working on the assignment. Post videos on the student wiki and resource lists that everyone can add to, including students and parents. Participation is the name of the game. See Michael Wesch's podcast lecture on how he does this with anthropology students (Wesch, online.)

Over the longer term, one could design portals for each department in a school showing feeds of major topics in each area, resources created by students and feeds from ongoing work, in the department. (All blogs and wikis automatically produce feeds.) These could be posted on a learning commons resources wiki alongside pathfinders or on the school website, whichever is more used. Involving a student team here from each department would be ideal. An excellent aid for teacher-librarians is the wiki, *The New Learning Commons* (Loertscher, Koechlin, Zwaan, online), a discussion in which everyone can participate.

If *figure/ground* language is included in word walls around the learning commons and anchor charts are developed for *figure/ground* analysis and cultural mapping, then visiting teachers, classes and students, with the teacher-librarian's help, will eventually develop these critical thinking skills. In turn, they will pass them on to others. Inviting the principal in to see a class in action will expose the principal to these skills and further the conversation. The authors hope that by learning these skills, students will learn how to learn by themselves.

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Middle and Secondary School Teachers' and Students' Journey of Constructivist Knowledge Building with Knowledge Forum

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Introduction

> *Knowledge is not only a support for work and production...but the key form of work and production itself, as more educated people work in the fields of ideas, communication, selling, marketing, counseling, consultancy, tourism, event organizing and so forth.*
>
> (A. Hargreaves, 2003, p. 16)

We live in a knowledge society, in which ideas and knowledge are increasingly being regarded as products in their own right, not just a means to product creation as in the past. We also live in the digital age, where computer technology continuously creeps in upon increasingly more aspects of our daily living activities.

> As foundational ICT skills penetrate throughout our society, students will be expected to apply the basics in authentic, integrated ways to solve problems, complete projects, and creatively extend their abilities.
>
> (International Society for Technology in Education, 2007)

Then there are the 21st century skills to consider. Drawing from cognitive science, as well as workplace readiness as defined by the US government, business, and industry, the Metiri Group put forth the enGauge 21st Century Skills in 2003 (http://www.metiri.com/features.html). These skills are categorized into 4 strands: digital-age literacies, inventive thinking, effective communication, and high productivity.

In consideration of the knowledge society, the digital age, and 21st century skills, how might educators provide engaging learning experiences that would prepare our learners to be successful in these 3 phenomena of our time? To reframe the question down to a more manageable scale, I asked myself: "How might we engage students in non-fiction writing through constructivist knowledge building and digital media creation?" This question prompted the launch of the Knowledge Building Culminating Activity (KBCA) project in late autumn 2008. The purpose of this project was to assist teachers and empower students to

use Information Communication Technologies (ICT) to demonstrate their learning of Ontario Ministry of Education curriculum expectations with an emphasis on non-fiction writing.

In my capacity as a Toronto District School Board (TDSB) ICT and e-Learning Instructional Leader at the time, I had the opportunity to work with and support K-12 teachers across the school board in the curricular integration of ICT. Recognizing that the school library is often the hub of the school, and that the school Teacher-Librarian(s) are vital to this hub, it was quickly determined that a school's Teacher-Librarian would be this project's initial point of contact. Teacher-Librarians often have an interest in curricular ICT integration and are likely to share their ICT integration strategies with the school staff, thereby building capacity within the school over time. Furthermore, Teacher-Librarians often have a good gauge on individual teaching styles and methodological interests of a school's teaching staff. Hence, Teacher-Librarians have the greatest potential to make a school-wide impact as effective change agents and change agent recruiters on any school teaching staff.

A proposal form was distributed to a number of TDSB Teacher-Librarians, which outlined the project's purpose and goals, the ICT Instructional Leader's role, the teachers' role, and the school administration's role. The project could be, but was not limited to, a research project whereby the 4-stage Ontario School Library Association (OSLA) inquiry and research model (Ontario School Library Association, 1998; TDSB, 2005 & 2006) would be implemented. A large part of the learning process would involve online student collaboration for constructivist knowledge building through non-fiction writing, in a digital environment called Knowledge Forum (http://www.knowledgeforum.com).

Assessment and evaluation were also a key consideration. Hence the Ontario Ministry of Education's Achievement Chart categories were included in the project vision. Ontario Achievement Charts identify 4 categories of knowledge and skills: (1) knowledge and understanding, (2) thinking, (3) communication, and (4) application. This is a province-wide guide for teachers to assess and evaluate student performance on evidence collected over time (Ontario Ministry of Education, 2004).

The following table summarizes the initial vision of how OSLA's inquiry and research model, non-fiction writing, constructivist knowledge building, ICT, and the Ontario Achievement Chart could be integrated:

Inquiry & Research Model (Ontario School Library Association, 1998) http://www.accessola.com/action/positions/info_studies/html/research.html	**Non-Fiction Writing + Constructivist Knowledge Building + ICT Integration**	**Ontario Achievement Chart Categories Addressed** (Ontario Ministry of Education, 2004) http://www.edu.gov.on.ca/eng/document/policy/achievement/index.html
Stage 1: Preparing for Research	Constructivist knowledge building in Knowledge Forum	▪ Knowledge & Understanding ▪ Thinking ▪ Communication
Stage 2: Accessing Resources	Constructivist knowledge building in Knowledge Forum	▪ Knowledge & Understanding ▪ Thinking ▪ Communication
Stage 3: Processing	Constructivist knowledge building in Knowledge Forum	▪ Knowledge & Understanding ▪ Thinking ▪ Communication
Stage 4: Transferring Learning	Students create: ▪ Digital Comics (using Comic Life), OR ▪ Podcast (using Audacity)	▪ Communication ▪ Application

Table 1. KBCA integration model.

Limited choice was given as to the type of performance task / culminating activity to be produced by students at the end – either a digital comic or a podcast. Project goals were:

- Students will collaborate in an online environment – Knowledge Forum - for knowledge building through non-fiction writing
- Students will demonstrate Ontario Ministry of Education curriculum expectations through a final digital comic using Comic Life, or podcast using Audacity
- Each classroom teacher will collaborate with their Teacher-Librarian and ICT Instructional Leader to create and develop a performance task / culminating activity with ICT integration throughout the delivery, process, and product that includes non-fiction writing to support literacy
- ICT Instructional Leader will assist with the implementation of a project-based learning model that will build capacity and can be shared among teachers within the school
- Students will be engaged and motivated to achieve and demonstrate their learning through essential ICT skills
-

Participating teachers would be provided with four supply coverage days to support planning, implementation, and presentation of project goals. In addition, these teachers and their students would be supported throughout the project by an ICT Instructional Leader through face-to-face meetings as well as online. School teams who wished to participate in the KBCA project must be comprised of a Teacher-Librarian and two classroom teachers of different grades or different subjects. Interested school teams were encouraged to submit their project proposals.

Budgetary and time resources allowed me to work with two school teams – a middle school team and a secondary school team. Both schools were culturally diverse inner-city schools. The table below summarizes the composition of each school team and the subject areas addressed by these teachers in the KBCA project.

Middle School	
T. Friesen	Teacher-Librarian
S. Shorey	Gr. 6 Language Arts & Social Studies
E. Galli	Gr. 8 Language Arts & History
Secondary School	
D. Jaksic	Teacher-Librarian
M. Obcena	Gr. 12 The Writer's Craft (University Preparation) Curriculum Leader
A. De Marchi	Gr. 12 Economics (University Preparation) Curriculum Leader

Table 2. KBCA school teams.

Project Plan

The overall project plan was as follows:

Middle School ▪ Mar. 31, 2009 *Secondary School* ▪ Apr. 15, 2009 ▪ Apr. 16, 2009	**Phase 5.1: Final Product Technical Training for Students** 1. By now, students have: ▪ created their script ▪ created their storyboard ▪ gathered their necessary media (i.e. image or sound files) 2. ICT IL introduces students of all 4 classes to the software they will be using to create their final product (i.e. Comic Life or Audacity) 3. ICT IL discusses copyright issues and provides copyright-free image and sound resources
Middle School ▪ Mid Apr. 2009 *Secondary School* ▪ Apr. 21, 2009	**Phase 5.2: Final Product Production Follow-Up** 1. Follow-up session with classes as necessary to see podcast and/or digital comic production progress and provide further instructional support as necessary. **Data Collection** 2. *Teacher Reflection Interview #4.* Video-record interviews of teachers. Questions: a) Congratulations! You've completed the KBCA project with your students! How have you, as a teacher, benefitted or grown from participating in this project? b) How have your students benefitted or grown from participating in this project? c) If this project were to run again, what suggestions for improvement might you have? 3. *Student Reflection Interview #4.* Video-record interviews of 3 designated students per class. Questions: a) *Middle school students only:* Now that you've finished your digital comic to show what you've learned, what do you think about the work that you did? b) *Secondary school students only:* Now that you've finished your podcast to show what you've learned, what do you think about the work that you did? c) How did you make your final product interesting enough to sustain your audience's attention? d) How has the creation of this final product helped you grow as a reader and a writer? 8. *Teacher Online Post-Survey.* All teachers and teacher-librarians to complete an online post-survey gauging comfort level with using various technologies (e.g. Knowledge Forum, Audacity, Comic Life, podcasting, blogging, and online video
	a) After participating in Knowledge Forum, how have you grown as a learner? b) How have you grown as a reader and writer? c) *Middle school students only:* How do you feel about demonstrating what you've learned by creating a digital comic using Comic Life? d) *Middle school students only:* What ideas have you got for your comic, to show all that you've learned, while at the same time, making it creative and interesting? e) *Secondary school students only:* How do you feel about demonstrating what you've learned by creating a podcast? f) *Secondary school students only:* What ideas have you got for your podcast, to show all that you've learned, while at the same time, making it creative and interesting?
Middle School ▪ Mar. 31, 2009 *Secondary School* ▪ Apr. 15, 2009	**Phase 5.1: Final Product Technical Training for Students** 1. By now, students have: ▪ created their script ▪ created their storyboard ▪ gathered their necessary media (i.e. image or sound files)

Table 3. KBCA Project Plan.

Phase 1: Introduction to Constructivist Knowledge Building Pedagogy & Knowledge Forum

Both school teams were brought together for the first time in early December 2008 for our first of three supply coverage days. We spent the morning at the Institute of Child Study (ICS) Lab School (http://www.oise.utoronto.ca/ics/ICS_Lab_School/index.html), where the Vice Principal, Richard Messina, gave a presentation about the school's philosophy – constructivist knowledge building. Richard then led us to a grade 3 classroom and a grade 5 classroom.

In these classrooms, our group of educators observed and interacted with the students in various constructivist knowledge building activities including partner research, small group discussion, and active participation in an online discussion environment called Knowledge Forum (http://www.knowledgeforum.com). The children were very articulate and eager to share what they were working on with us, and they were happy to show us how their ideas within their Knowledge Forum space were evolving. Although the ICS children we observed were much younger than the middle school and grade 12 students that this group of TDSB teachers work with, these teachers were nevertheless energized by what they observed and were excited about the potential that this approach offered for their own students.

Our visit at ICS ended with a Question and Answer period in which the grade 5 and grade 3 ICS teachers met with our 2 school teams to address any concerns about the implementation of constructivist knowledge building pedagogy in the classroom. This discussion proved to be very helpful to the TDSB teachers who, although excited to try this new approach, had some practical questions about how to "make this work". Richard Messina's advice was:

> We need to reconcile them for ourselves – the demands of the curriculum, and yet, how do children really learn? I challenge you to pick 1 thing you do in the whole year, where they are able to explore something deeply...where children can show some direction in the design of it, where they can go deeply, and that they see you as a co-learner in that design, and that you are developing a collective understanding. It's not that they're trying to guess what's in your head but that they are actually constructing this together. *(Richard Messina, Vice-Principal, ICS)*

As previously mentioned, students and teachers involved in this KBCA project would be collaborating in a cross-platform online environment called Knowledge Forum, to engage in active knowledge building through non-fiction writing. Note that constructivist knowledge building does not necessarily need a digital environment in which to occur, though knowledge building in a digital environment adds great benefits to teachers and learners alike. Furthermore, teachers and students of the KBCA project utilized the Knowledge Forum application as their digital environment for constructivist knowledge building, but any digital environment which allows for asynchronous threaded discussion can be utilized for this purpose.

To debrief what we had just seen during our ICS visit as well as to immerse the six TDSB teachers involved in the KBCA project in the Knowledge Forum environment, we next went to a computer lab at the Ontario Institute for Studies in Education of the University of Toronto (OISE/UT), where I did a half-day training session with these teachers on how to use Knowledge Forum. The objective was to train the teachers on how to use Knowledge Forum, and to have them collaboratively build knowledge in Knowledge Forum. Furthermore, the Teacher-Librarians at each school were given some extra training, including Knowledge Forum account management, to establish them as the Knowledge Forum "go-to" person at their school. The very first task that these teachers were given was to answer three questions which were designed to help them connect their new learnings from their ICS visit to their current teaching practice, help them think about what new approaches they wanted to incorporate into their current practice, and probe them for their initial anxieties:

1. *Alignments* - "After visiting ICS, what did you see and/or learn there that aligns with your current teaching practice? Please Build-on to this note, then respond to two other notes in this view."
2. *I want to try...* - "After visiting ICS this morning, what new pedagogy and/or practice(s) would you like to incorporate into your own teaching? Please Build-on to this note, and respond to 2 other notes in this view."
3. *Challenges Ahead* - "After visiting ICS this morning, what challenges do you foresee in doing Knowledge Building and/or Knowledge Forum with your students back at your own school? Please Build-on to this note, and respond to at least 2 other notes in this view."

Each of these three questions was a separate "note" to which the six teachers responded. Below is an image of this Knowledge Forum "view" (screen) in which these asynchronous online discussions took place. Each red square represents a "note" that has been read by the user (a square will be green if it has not been read yet). Beside each note is the title of the note and the author's username. The blue arrows indicate which notes respond to which.

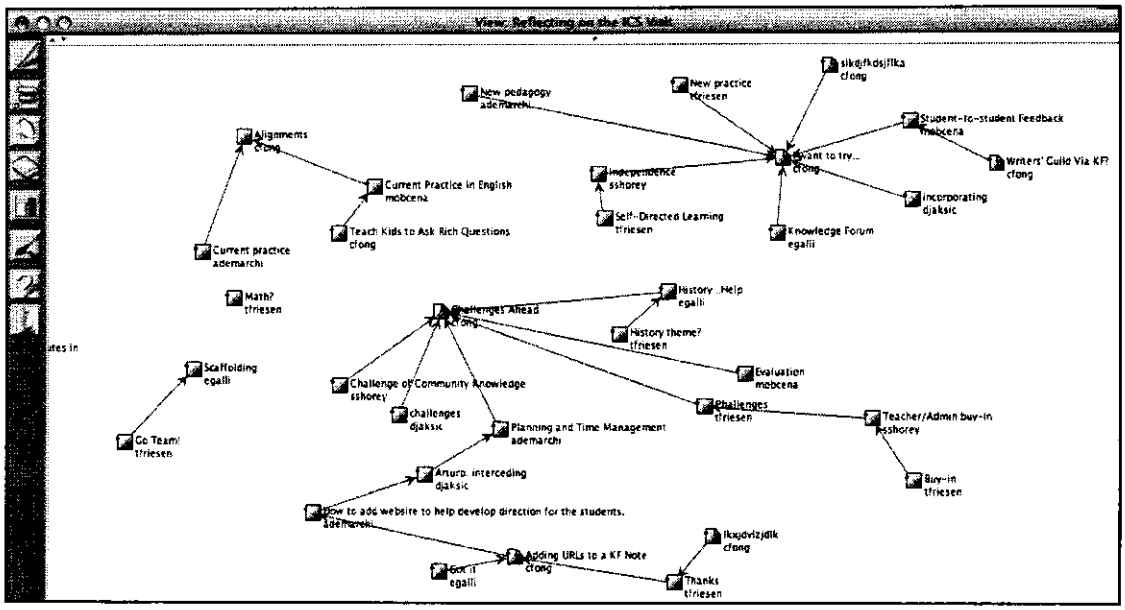
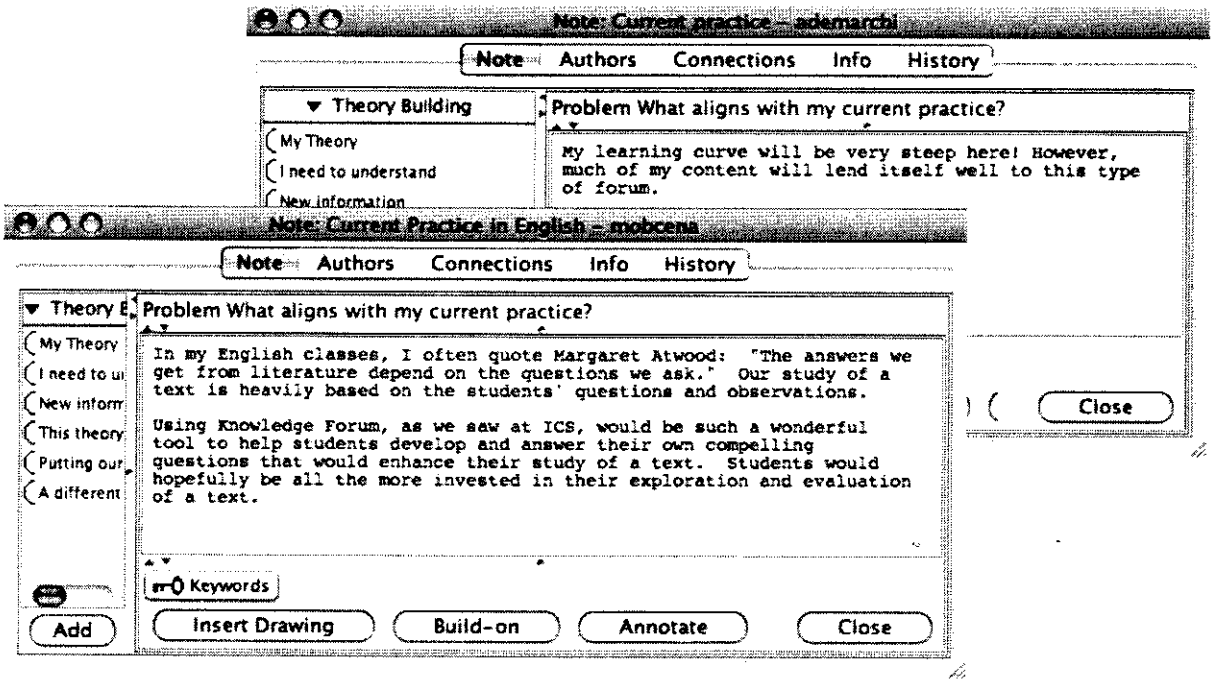


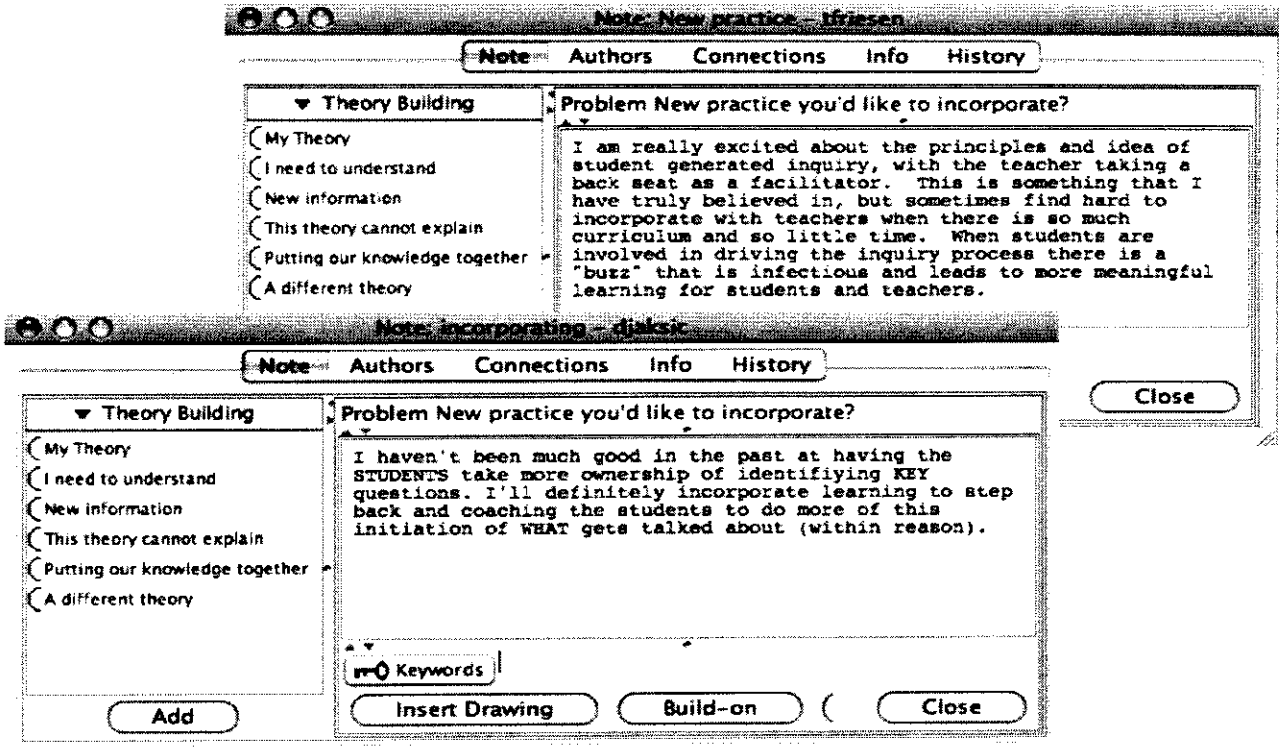
Figure 1. A Knowledge Forum "view" in which KBCA teachers worked after visiting ICS.

Below are images of teachers' Knowledge Forum notes. The left panel of a note is a menu of "scaffolds" inherent in the Knowledge Forum software, designed to help learners work with their ideas and new knowledge to arrive at deeper understanding. These scaffolds are modifiable. Both grade 12 teachers were already beginning to see how they could incorporate the use Knowledge Forum for collaborative knowledge building activities with their students.

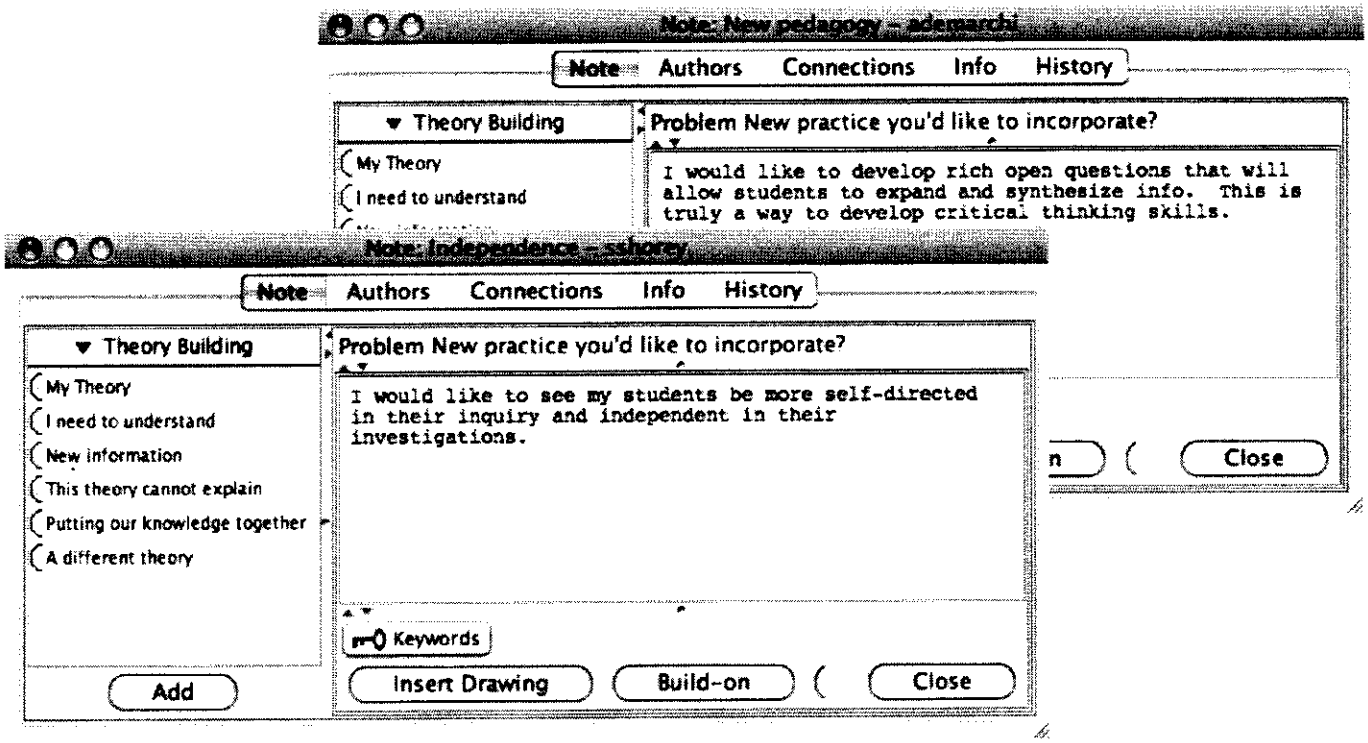


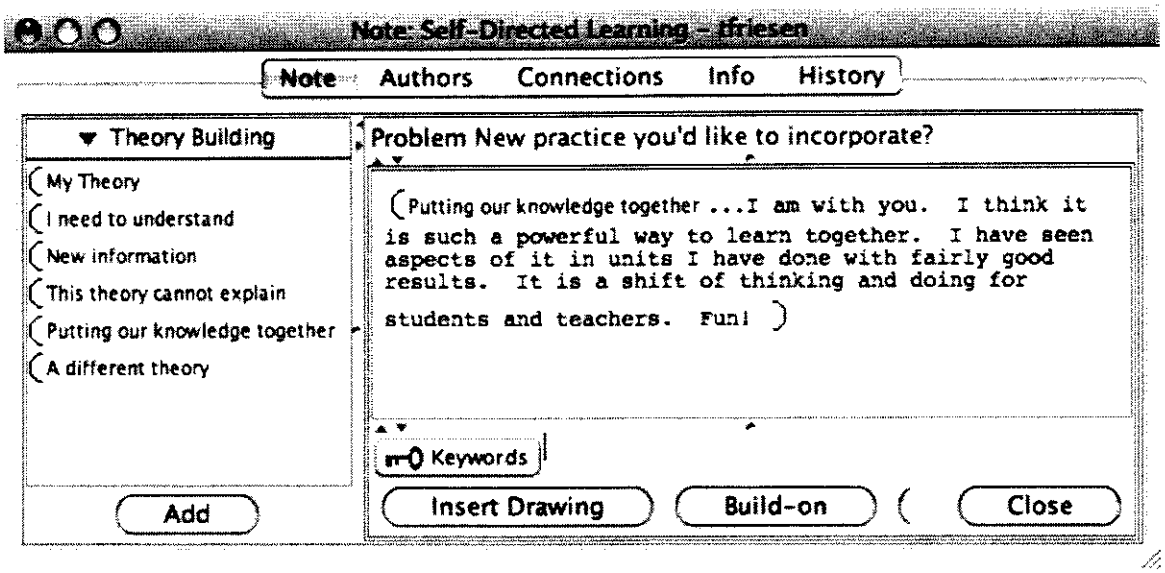
In terms of incorporating new constructivist pedagogy into their teaching practice, these teachers were keen to give it a try while also acknowledging the realities of time constraints and alluding to their own discomfort. Both of the Teacher-Librarians recognized that

participation in the KBCA project would require all teachers to shift from being the "sage on the stage" to the "guide on the side", and were open to making this role shift:

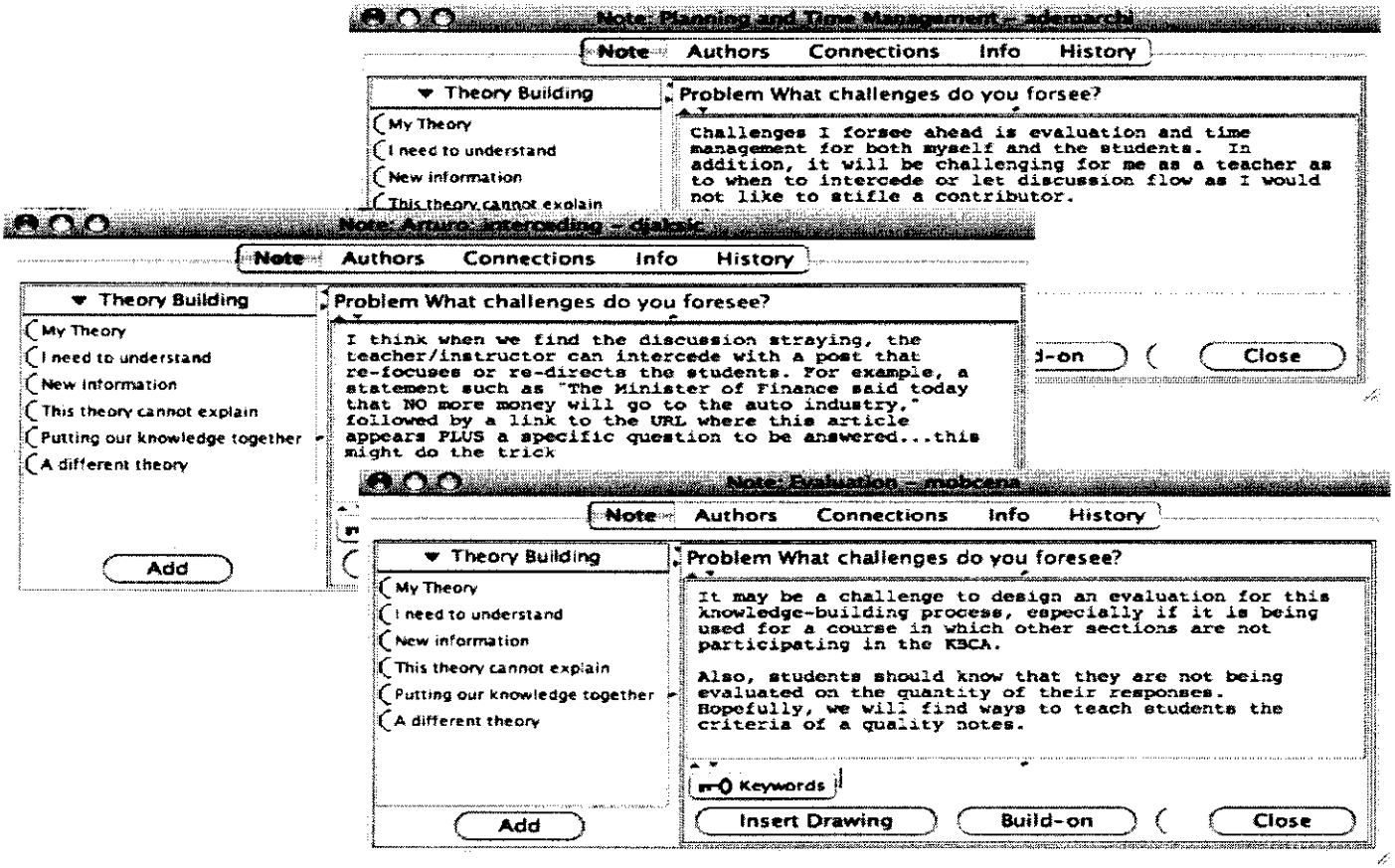


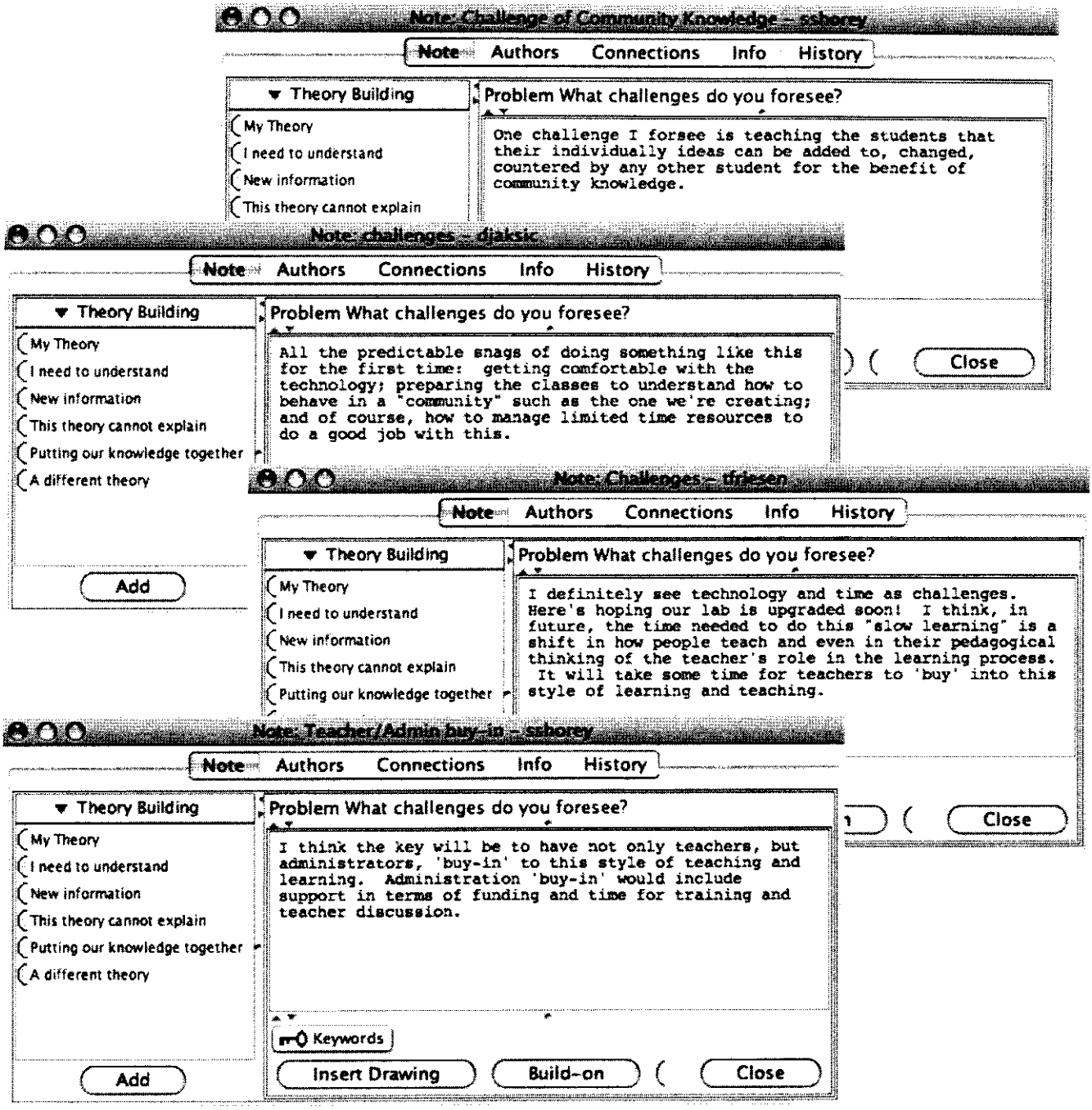
The classroom teachers were already beginning to conceive of a new role for themselves and for their students:





When asked about foreseeable challenges in taking a constructivist knowledge building approach to teaching and using Knowledge Forum with their students, the teachers named planning, time constraints, effective teacher facilitation, evaluation, student efficacy as a result of having one's ideas improved upon by other students, technological concerns, and teacher/administration "buy-in":




Note: Challenge of Community Knowledge – sshorey
Note Authors Connections Info History
Theory Building
My Theory
I need to understand
New information
This theory cannot explain
Problem What challenges do you foresee?
One challenge I forsee is teaching the students that their individually ideas can be added to, changed, countered by any other student for the benefit of community knowledge.
Note: challenges – djaksic
Note Authors Connections Info History
Theory Building
My Theory
I need to understand
New information
This theory cannot explain
Putting our knowledge together
A different theory
Problem What challenges do you foresee?
All the predictable snags of doing something like this for the first time: getting comfortable with the technology; preparing the classes to understand how to behave in a "community" such as the one we're creating; and of course, how to manage limited time resources to do a good job with this.
Close
Add
Note: Challenges – tfriesen
Note Authors Connections Info History
Theory Building
My Theory
I need to understand
New information
This theory cannot explain
Putting our knowledge together
Problem What challenges do you foresee?
I definitely see technology and time as challenges. Here's hoping our lab is upgraded soon! I think, in future, the time needed to do this "slow learning" is a shift in how people teach and even in their pedagogical thinking of the teacher's role in the learning process. It will take some time for teachers to 'buy' into this style of learning and teaching.
Note: Teacher/Admin buy-in – sshorey
Note Authors Connections Info History
Theory Building
My Theory
I need to understand
New information
This theory cannot explain
Putting our knowledge together
A different theory
Problem What challenges do you foresee?
I think the key will be to have not only teachers, but administrators, 'buy-in' to this style of teaching and learning. Administration 'buy-in' would include support in terms of funding and time for training and teacher discussion.
Keywords
Insert Drawing
Build-on
Close
Add

Phase 2: Project Design

The second supply coverage day for the 6 teachers involved in the KBCA project occurred 1 week later. The objectives of this day were:

- Classroom teachers to collaborate with their Teacher-Librarian and ICT IL to backward map a curricular unit, and design assessment and evaluation strategies
- Submit potential culminating activity (CA) or performance task (PT) idea
- Set timelines
- Define content, process, and product
- Teachers continue building online learning environment in Knowledge Forum
- IL to review potential CA/PT idea with individual teachers

The teachers were also introduced to what is known in the Toronto District School Board (TDSB) as the "4-Stage Research Process". To support teachers in the research The TDSB's Library and Learning Resources department have created separate research guides for the elementary panel, *Imagine the Learning* (2006), and the secondary panel, *Research Success* (2005); which contain many student-friendly blackline masters. Both these documents are based upon the OSLA's Inquiry and Research model (1998).

As an example of the types of performance tasks / culminating activities that were designed, the table below summarizes each KBCA class' task/activity scenario.

Ontario Curriculum To Be Addressed & Teacher	Performance Task / Culminating Activity Scenario
Gr. 6 Language Arts & Social Studies (Heritage & Citizenship: First Nation Peoples and European Explorers) **S. Shorey**	You are a famous comic book author! You've been hired to create an entertaining and educational comic about Canada's Aboriginal peoples. To be successful, you need to research daily life in an Aboriginal settlement. You will need to research the geography, language, agriculture, wildlife, shelter, clothing, transportation, governance, recreation, and spiritual beliefs of a specific Aboriginal settlement. Good luck!
Gr. 8 Language Arts & History (Confederation) **E. Galli**	Since you played an important part in the success of Canada's confederation, you have been approached to be a member of a consulting panel to assist the governments in the process of uniting a group of islands that are in the initial stages of becoming a country. Your expertise of what went wrong, what worked well and the process during the unifying of Canada as a new country will be of great importance to the governments of these islands. Afterwards, you will be required to produce a manual to assist other countries who are in the process of unifying.

4U (Gr. 12) The Writer's Craft **M. Obcena**	You have been hired by the CBC to host "The Write Stuff," a podcast which is written by teens, for teens. These podcasts will feature authors you admire and examples of "good writing." Each podcast will analyze how one author and/or work of writing has inspired you to write. Your podcast should be 2 minutes in length.
4U (Gr. 12) Economics **A. De Marchi**	We have established a colony on the moon and you have been appointed by the United Nations to suggest a possible economic system that will make the Moon's economy prosper. Collect data from earth to help you determine your theory and develop and present a podcast regarding your theory. Your findings must be presented in a podcast to the United Nations in New York City. Your podcast must be 2-3 minutes in duration.

Table 2. KBCA Performance Task / Culminating Activity Scenarios.

Phase 3: ICT Integration

The third and final supply coverage day occurred 1 week after returning from the winter holidays. The objectives of this day were:

- ICT IL delivers training of: Audacity, Blogger, Box.net, Comic Life, Photo Story, copyright issues regarding image and sound files
- Hands-on workshop, teachers create their assignments along with exemplars to relate to their assessment and evaluation of the unit
- Examine good questioning techniques – how to create good questions for students, and how to teach student to ask good questions
- ICT IL to review potential CA/PT idea with individual teachers

Figure 2. KBCA Teachers receiving ICT training.

To ensure that teachers had continuous online support with respect to the use and creation of blogs and podcasts, I created 2 interactive tutorial blogs, which I encouraged them to use with their students:

- http://tdsbblogging.blogspot.com
- http://www.podvodcasting.blogspot.com

Facilitating Rich Discussions with Rich Questioning

In order to encourage higher order thinking skills and facilitate rich discussions in the Knowledge Forum views as well as in face-to-face KB talks in the classroom, questioning skills of both the facilitator as well as the learners become crucial. Helpful resources to this end include:

- Koechlin, C. & Zwaan, S. (2006). *Q Tasks: How to empower students to ask questions and care about answers.* Markham, Ontario: Pembroke Publishers Limited.
- Essential Questions: http://questioning.org/mar05/essential.html
- The (Merely) Demanding Question: http://questioning.org/sept06/demanding.html
- A Question Toolkit: http://www.fno.org/nov97/toolkit.html
- Question Matrix: http://www.decs.sa.gov.au/assessment/pages/assessmentstrategies/question/?reFlag=1

We examined rich questioning techniques and it was suggested that this should be taught at the start of a knowledge building unit and continuously reinforced throughout the community knowledge building process. This aligns nicely with "Stage 1: Preparing for Research" of the 4-stage Ontario School Library Association inquiry and research model (1998). Furthermore, rich questioning is a skill that experts and researchers at the cutting edge of their disciplines must employ to continually push the frontiers of their discipline. By nurturing this skill from a young age, we are preparing our learners to be knowledge workers in the knowledge society – where "knowledge is a flexible, fluid, ever-expanding, and ever shifting resource" (Hargreaves, 2003, p. 16).

Some time after this training day, all KBCA teachers were asked to complete an anonymous online pre-survey to gauge comfort level with the new technologies as well as to probe for how they felt about implementing constructivist knowledge building, digital comic production, and/or podcasting into their teaching practice. What follows are some of the pre-survey questions and teachers' corresponding remarks.

- What are your thoughts and feelings about incorporating constructivist knowledge building into your teaching practice?
-
    - "I wish I had more experience with KB before teaching my students to use it. Essentially, we are learning together on this project."
    - "I am seeing the benefits of constructivist knowledge building. I am still learning how to incorporate teaching and learning style. It is a shift in how I teach and in how students learn. I am learning to let go of being at the centre of the teaching experience and letting the learning happen. I think with more time, constructivist knowledge building will be a part of my classroom experience."
    - "Very good, but only if it (Knowledge Forum) is up and running on a consistent basis!"
    - "Quite frankly, what I'm drawn to is the inherent 'democracy' of the philosophy behind 'constructivist knowledge building.' If there's one thing human society needs more of, in my view, is lucid, cogent challenging of the

status quo which has brought us to where Mankind is today...a place not be bragged about."
    - "I can see endless applications with this strategy and can easily apply it into my teaching practice."
    -
- *Middle School Teachers Only:* What are your thoughts and feelings about incorporating digital comic creation and digital photo story creation into your culminating activity?
-
    - "I feel very comfortable with both software because I have used them in my teaching practice."
    - "I believe this is an effective way to get students to create! I have seen students engaged in what they are doing. No one seems to be left behind. They take more ownership and pride in what they are doing and what they are handing in."
    -
- *Secondary Teachers Only:* What are your thoughts and feelings about incorporating podcasting into your culminating activity?
-
    - "While these aren't my classes, I can say that ANY original creation on behalf of students (and, really, with the right parameters, the podcasts can't help but be original creations) are inherently 'good' learning."
    - "Actually none of my students know anything about producing podcasts so it will be a challenge to meet timelines. Otherwise, I believe that this will be beneficial for my students and myself. Thank you for taking the time to help us broaden our perspective."

Phase 4.1: Knowledge Building with Students

With classroom teachers on hand to observe and participate in the lesson, I visited each of the 4 participating KBCA classes (2 classes per school) in their school's computer lab, and did an introductory lesson on how to use Knowledge Forum (KF). Each class had their own space that could be visible by the other KBCA class in the same school. All teachers were able to view all class KF spaces, regardless of what school they belonged to. It was deliberately organized this way to allow teachers and students to see how others were knowledge building.

Each class' KF space contained on "View" (screen) which I called the "Sandbox". In this space, I pre-posted 3 notes which asked the students about their initial thoughts about Knowledge Forum, how they think KF might help them in their learning, and what are some foreseeable challenges with working in KF. As students played with the various new KF tools I introduced, they addressed these questions. Initial student postings to KF invariably will be of lower quality and will demonstrate a significant amount of technical "messing around" and casual instant messaging lingo. The Sandbox area is a wonderful place for students to explore the tools of their new digital environment.

Students and teachers were made aware that clicking on the question mark icon in Knowledge Forum's left menu bar would bring them to Knowledge Forum's "Help" website

(http://ikit.org/kf/48/help) which includes video tutorials. As the students experiment in the KF environment, I circulate the computer lab to find 2 or 3 students who seem technically savvy and particularly comfortable with KF. These students become the class' designated "Go To" people if anybody needs technical assistance, and are given a little extra technical training during this time. Introducing this extra layer of technical support within the class serves to put the rest of the class and the teacher at ease.
After a short period of individual experimentation in KF, I usually launch into a discussion about the difference between informal and formal writing. This is also a good time to make students aware of who in the world is able to read their postings, and how long their postings will stay "out there" in cyberspace. These are important issues to discuss! Since our digital learners spend so much of their time outside of school on digital social platforms such as MSN and Facebook, they often have a false sense of internet privacy/security, a blurred distinction between what constitutes informal and formal interactions through different writing styles, and confusion about when it is appropriate to use informal and formal writing styles.

As students continue to explore and experiment with KF while responding to my 3 questions and to each other's responses, I usually begin to introduce some basic knowledge building principles. Marlene Scardamalia (2002) has created 12 Knowledge Building Principles and these were introduced to all KBCA teachers during their training days. While I do think it is worthwhile to gradually teach these principles to students if they will be knowledge building over the better part of a school year, it could be too much to handle for students who are just beginning to learn how to collaboratively construct knowledge. To avoid overwhelming the students but in keeping with the spirit of Scardamalia's Knowledge Building Principles, I posted 3 "A" statements in each class' main KF view:

1. All ideas are accepted.
2. All ideas are improvable.
3. All ideas become "knowledge artefacts/objects", and belong to the Knowledge Building Community.

With respect to #3, and aligning with knowledge building pedagogy, I tell students that once they post their idea as a note in KF, that idea is no longer "theirs". The idea becomes its own entity - a "knowledge artefact" and therefore the knowledge building community has the responsibility of improving upon that idea – just as they are responsible for improving all the other posted ideas that were written by other community members. This is key in helping students not to take it personally should "their" idea get improved upon by other classmates. More importantly, it teaches students that ideas are incredibly important and gives them a sense that ideas are at the centre of their learning, rather than tasks/activities being at the centre of their learning. The combination of #2 and #3 actually works to embed collaborative assessment, as the students learn not to take things at face value and to judge the validity of what they read. The corollary to this of course, is that students will take extra care to contribute well thought out and well-supported notes because they are acutely aware that their peers will be considering their contributions seriously. Furthermore, since they understand that they collectively are 1 knowledge building community, a spirit of co-operative learning and inclusive responsibility is instilled.

To provide students with a framework for composing a quality note contribution/response, they were taught to do "PQP":

- **P**raise: state what you think is a good idea, a helpful piece of information, or a point you agree with.
- **Q**uestion: ask a question that will prompt you and the rest of the knowledge building community to think deeper about the issue, or a question to help clarify a point.
- **P**ropose: suggest a new idea, new information, new strategy, or new approach to solve your current problem of understanding.

Both students and teachers have found this acronym to be particularly helpful. It is interesting to note that the middle school students often had socio-emotional difficulty with composing a "Praise" statement when responding to a classmate's note – even in written form! It is possible that this may be due to issues related to their adolescent developmental stage, or perhaps the inner-city peer culture of one-upmanship in which these students lived, or some combination of both. Whatever the case may be, it is all the more reason to encourage these students to demonstrate some positive reinforcement towards their peers' contributions to the knowledge community.

Finally, I reminded students that some of their knowledge building (KB) would continue outside of their digital Knowledge Forum environment – in face-to-face knowledge building discussions called "KB Talks". During KB talks, the 3A's and PQP still apply! Figures 3 and 4 show the Sandbox views of 2 classes. It is interesting to note that both grade 6 classes preferred the "As Icon" layout, whereas both grade 12 classes preferred the "As List" layout.

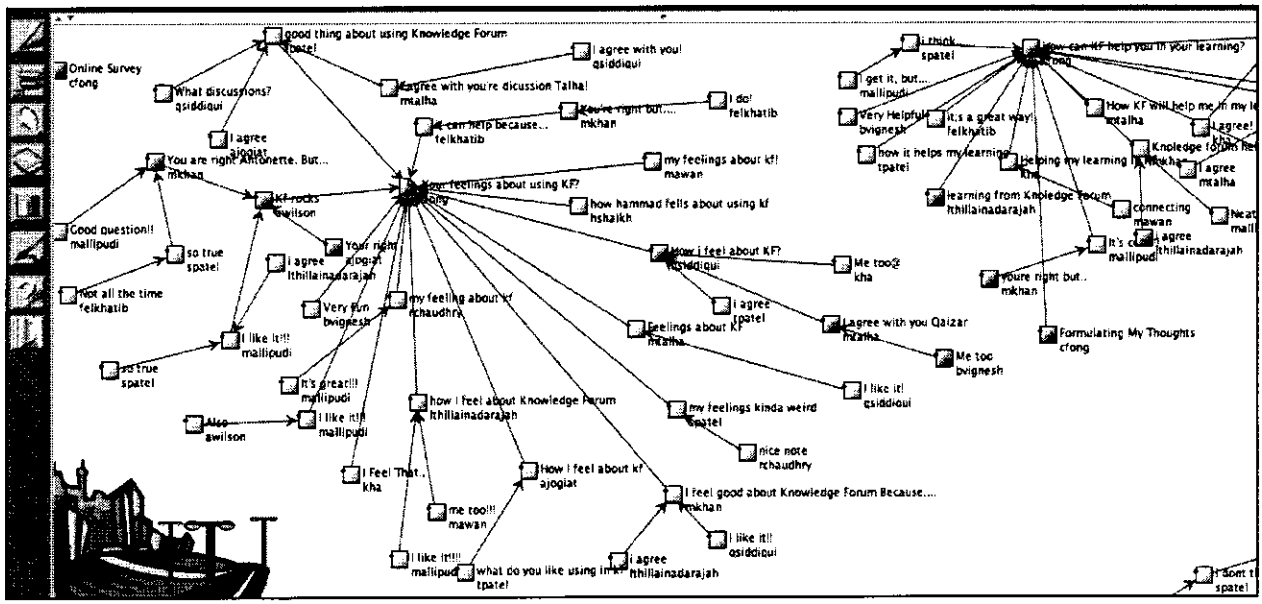


Figure 3. The grade 6 class' Sandbox view in KF ("As Icon" layout).

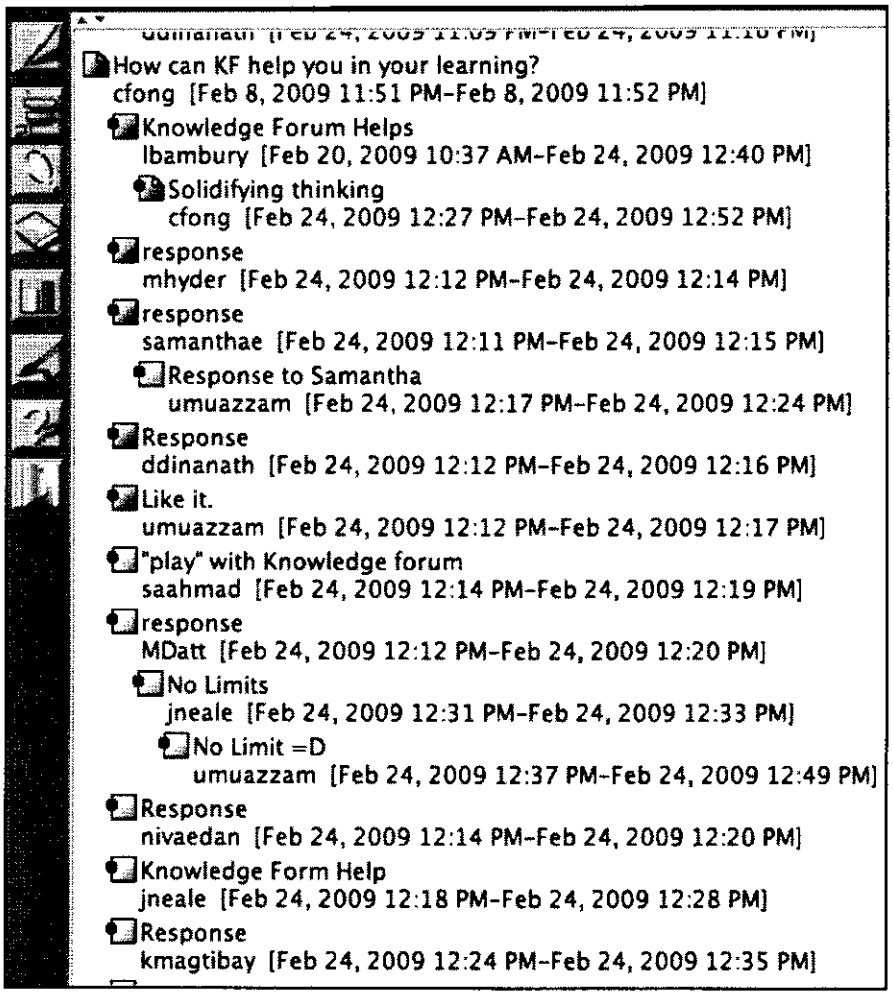


Figure 4. The Grade 12 Economics class' Sandbox view in KF ("As List" layout).

Phase 4.1 Teacher Reflections

After the introductory Knowledge Forum lesson, teachers remained excited about undertaking a new approach to teaching, and were excited for the new learning opportunity in Knowledge Forum they could provide their students:

> When I'm not in control, it frightens me. What I'm used to is sharing my knowledge with the students. With this (constructivist knowledge building), they're sharing their own knowledge. I'm guiding them as opposed to just strictly teaching them...What's really important to be able to teach the students before they even start, is good questioning techniques. *(E. Galli, grade 8 teacher)*

> Moving away from teacher-centred learning to student-centred learning...is actually very helpful for students in this day and age who require a lot more than just the teacher's response. So the whole class is working together to build knowledge. *(M. Obcena, grade 12 Writer's Craft teacher)*

When asked about foreseeable challenges, teachers mentioned their own and their students' having to adjust to the pedagogical approach. The secondary teachers could see that this new way of teaching could potentially be more time consuming and had some concerns about being able to cover the curriculum within the time they had. Finally, there were some concerns about learning the technology well enough to use it effectively for teaching and learning.

> Using the constructivist theory, you have to post an idea, and then build onto it. And sometimes the students aren't necessarily used to the idea of their idea being taken by somebody else and adapted. So I think that will be challenging for the students, and for our class – to have those class discussions of, 'this is community knowledge'. *(S. Shorey, grade 6 teacher)*

> ...I want them to discover the knowledge. That is the philosophy behind this - is that the students will discover the knowledge. So how am I going to guide them to get there? *(S. Shorey, grade 6 teacher)*

> What happens with Project-Based Learning is that there's always a balance that we have to keep in mind. When it comes to teaching this new technology (Knowledge Forum and podcasting) and covering the material for the course. I just hope that we'll continue to stay on track. *(M. Obcena, grade 12 Writer's Craft teacher)*

> ...because it's a new experience for myself and my students, the challenge will be understanding the technology and how to use the technology to be effective. *(A. De Marchi, grade 12 Economics teacher)*

With respect to having students create digital comics as a performance task, the middle school teachers were sure this would engage the students because their students enjoyed reading graphic novels. The secondary teachers saw having their students create podcasts as a culminating activity to be a relevant and authentic task for the current times we live in.

Phase 4.1 Student Reflections

Each classroom teacher chose 3 students from their class to would take part in video-recorded reflection interviews throughout the KBCA project. Following their introductory Knowledge Forum lesson, all the students were very excited about starting a project which integrated KF. The idea of adding to their peer's ideas, getting peer feedback, and having time to reflect on their own learning appealed to them. A couple of them were already beginning to see the value of being able to re-visit previous learning – a property of constructivist learning:

> If you log out of MSN, you'll most likely not be able to see the same chat again, but with Knowledge Forum, you can see it, so you can always come back to it - which is pretty good! *(Sohum, grade 8 student)*

I feel pretty excited because I've never had an opportunity like this before to use technology and I think nowadays, kids like me – we're not really used to reading books and stuff, it might be a little boring. So it's exciting going to the computer and doing different things. *(Lathiha, grade 6 student)*

I think Knowledge Forum is a revolutionary tool in learning. Knowledge building gives you a chance to learn at home without having the teacher. Also, it's taking away the sage on the stage and becoming more the guide on the side, where the teacher just guides you, and you start learning from yourself and other peers. *(Chris, grade 12 Economics student)*

I think it's a great way to build on a lot of the things that I learn, and I'm able to always look back on it and even think about, 'Oh, I never knew that I thought of that at one time!' *(Lakesha, grade 12 Writer's Craft student)*

I think that Knowledge Forum will help us with our course, because when we're on KF, talking with the other students, we're actually learning more because we're not only learning about what's in the textbook - we get to see the perspectives of all the other students and it really helps you when we're doing case study questions in our class. *(Thaksha, grade 12 Economics student)*

When asked about foreseeable challenges, they had concerns about the potential for online bullying in Knowledge Forum. Since Knowledge Forum only allows for asynchronous communication, any evidence of such inappropriate behavior would be visible to everyone who has access to their KF space – essentially, all the teachers and all the students in the class. This visibility is one safeguard and a further safeguard is that that all notes have a "History" feature which displays who authored and read the note, and at what time. Everything is stored on a server which is accessible by the Knowledge Forum technical support department.

Other concerns included access to Knowledge Forum at home, and low quality note contributions from peers which would not further the knowledge community's knowledge building efforts. To install Knowledge Forum on their home computers, students needed to have internet access at home and they needed to have the latest version of Java installed on their computer. Java can be downloaded for free from: http://www.java.com.

Knowledge building emphasizes quality over quantity. If that wasn't emphasized, then I think people would just go on and on and on, on their postings, and that would be a laborious process to read of all of that and then post - because if you don't read it, then you're not going to be staying up on the conversations. Another thing is that our ideas are spontaneous. So your ideas may lead to a great conversation, but there's also the bad route, where they might lead to digression. *(Chris, grade 12 Economics student)*

The only problem that we often face is that the window on the screen for Knowledge Forum is kind of confusing because all the notes and the dialogue boxes are out of place, but that's not a big deal because once you take your time to organize it, it's great for everyone. *(Mashiyat, grade 12 Economics student)*

Phase 4.2: KF Assessment Tools & Knowledge Building Follow-Up #1

Two weeks into their Knowledge Forum work, I re-visited all the classes to give some further instruction on PQP and the 3A's as mentioned in Phase 4.1. I also introduced the students to Knowledge Forum's 5 assessment tools, which can be accessed by students and teachers via the bar graph button on the left menu bar in the Knowledge Forum window. These assessment tools are:

1. Contribution
2. Semantic Overlap
3. Social Network
4. Vocabulary Growth
5. Writing

What follows is a brief summary of these 5 tools. For more information about any of these assessment tools, please see "Appendices" listed on Knowledge Forum's online help website: http://ikit.org/kf/46/help/enhanced/.

'Contribution' Assessment Tool

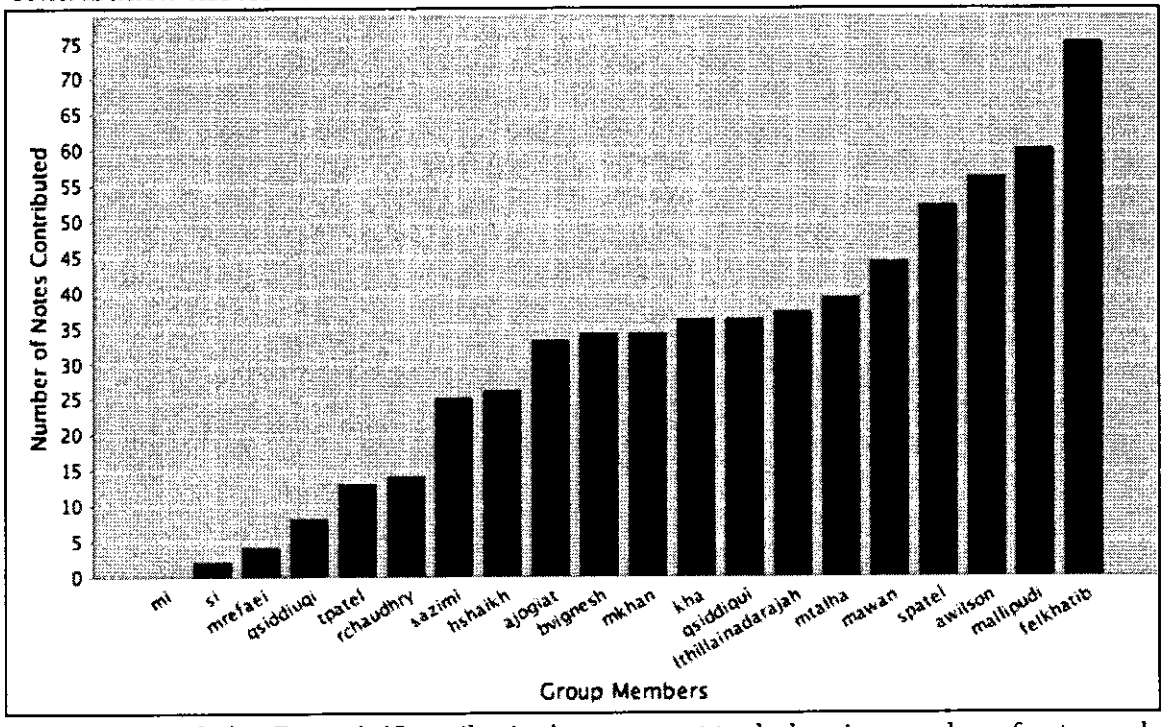


Figure 5. Knowledge Forum's 'Contribution' assessment tool, showing number of notes and Build-On notes posted by grade 6 students in S. Shorey's class.

The Contribution tool allows students and teachers to access data regarding the number and types of notes that have been read, contributed, or edited by individuals of a group within a Knowledge Forum database. When showing this tool to students, it is important to emphasize quality over quantity of notes. Students in other elementary classes in the past have used this tool to see who, in their class, might need more help or encouragement in becoming more active in the Knowledge Forum database.

'Semantic Overlap' Assessment Tool

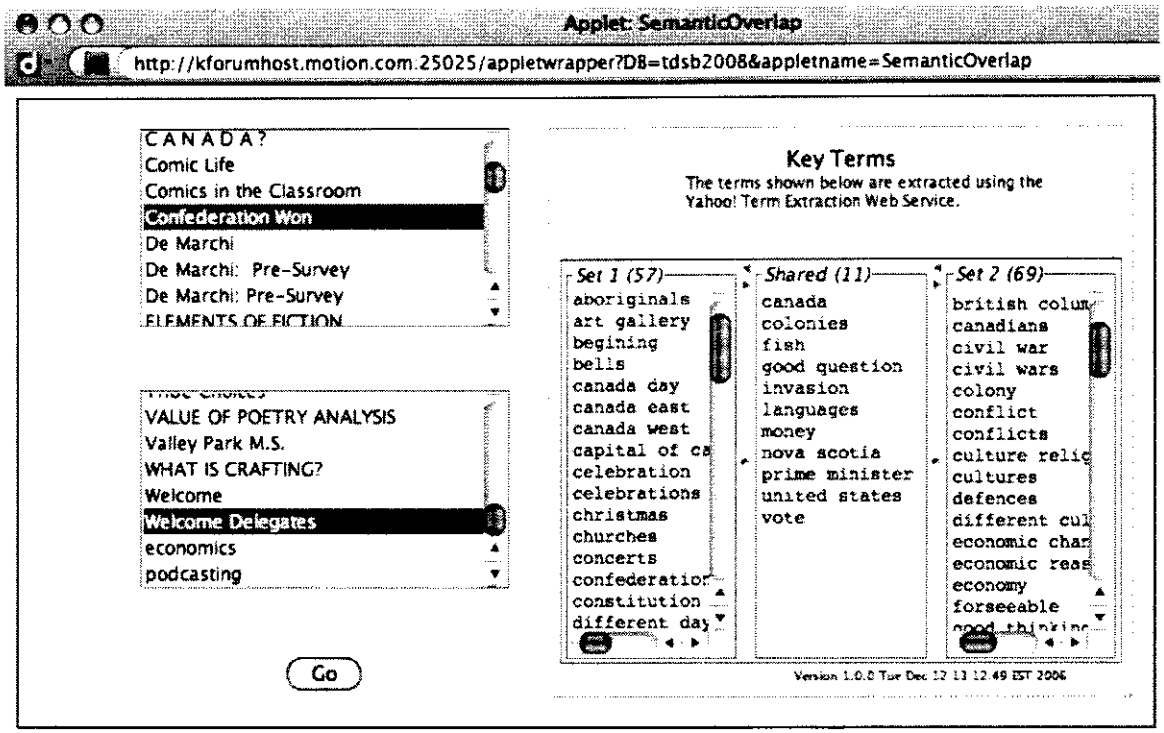


Figure 6. Knowledge Forum's 'Semantic Overlap' assessment tool, showing key terms from the notes of 2 separate grade 8 KF views: "Confederation Won" and "Welcome Delegates". The "Shared" column in the centre shows common key terms from both KF views which can indicate an overlap in ideas, theories, or topics.

The Semantic Overlap tool can be used to determine possible overlap in ideas, theories, or topics of 2 different Knowledge Forum views. This can be beneficial to students and teachers if they are trying to determine the evolution of an idea or theory, or perhaps looking for further resources to consider as they work with their current knowledge and ideas.

'Social Network' Assessment Tool

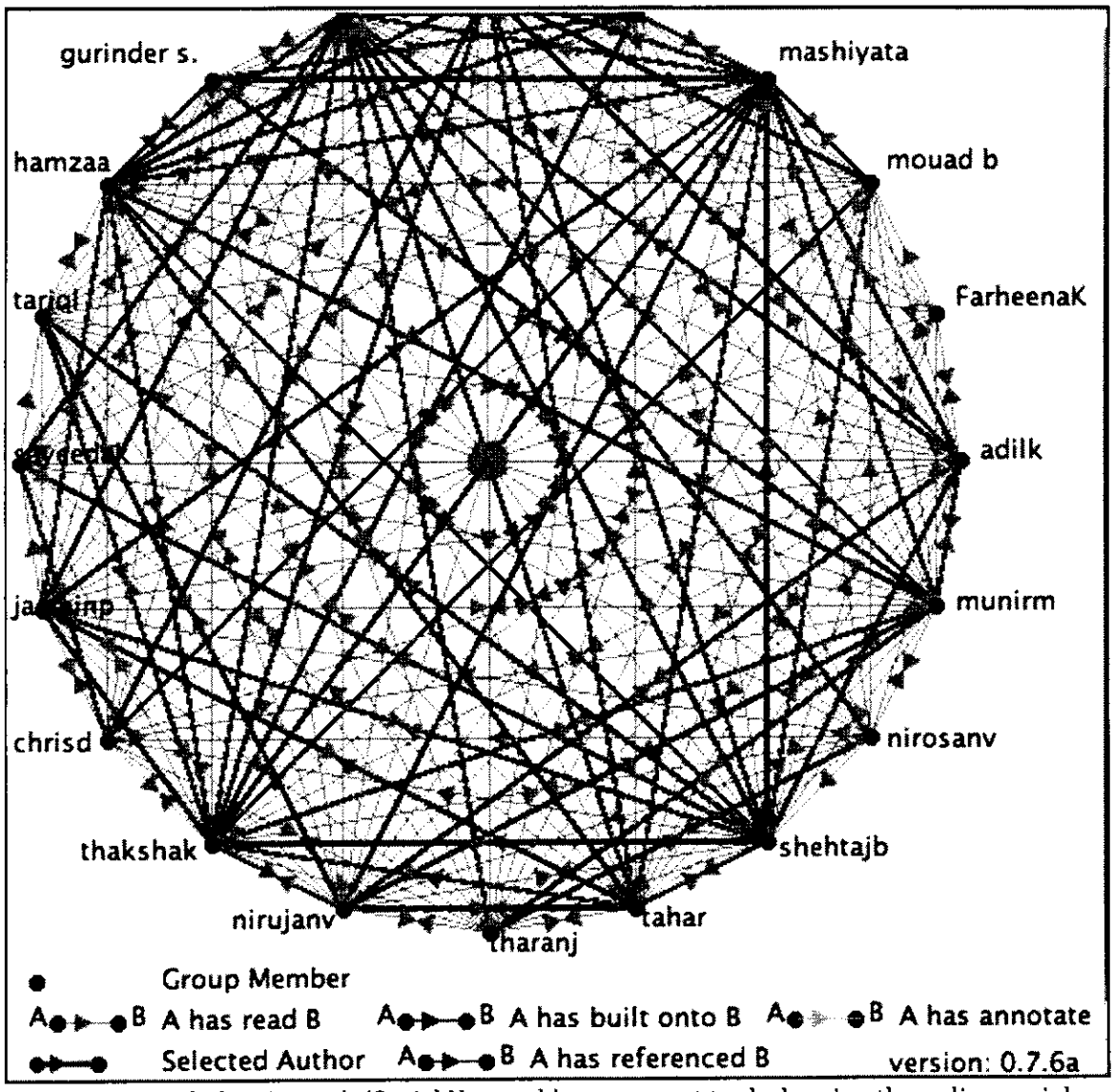


Figure 7. Knowledge Forum's 'Social Network' assessment tool, showing the online social interactions of A. De Marchi's grade 12 Economics class.

We see all the grade 12 Economics students' usernames around the edge of the graph in figure 7. The green arrows indicate which students have read which other students' notes. The blue arrows indicate which students have built upon which other students' notes. We can see that although Farheena K has read many of her peers' notes, she has not built upon anyone else's notes, nor has anyone built upon any of her notes. This is an indication that this student needs more support from the teacher and her peers to become more active in the community knowledge building process.

'Vocabulary Growth' Assessment Tool

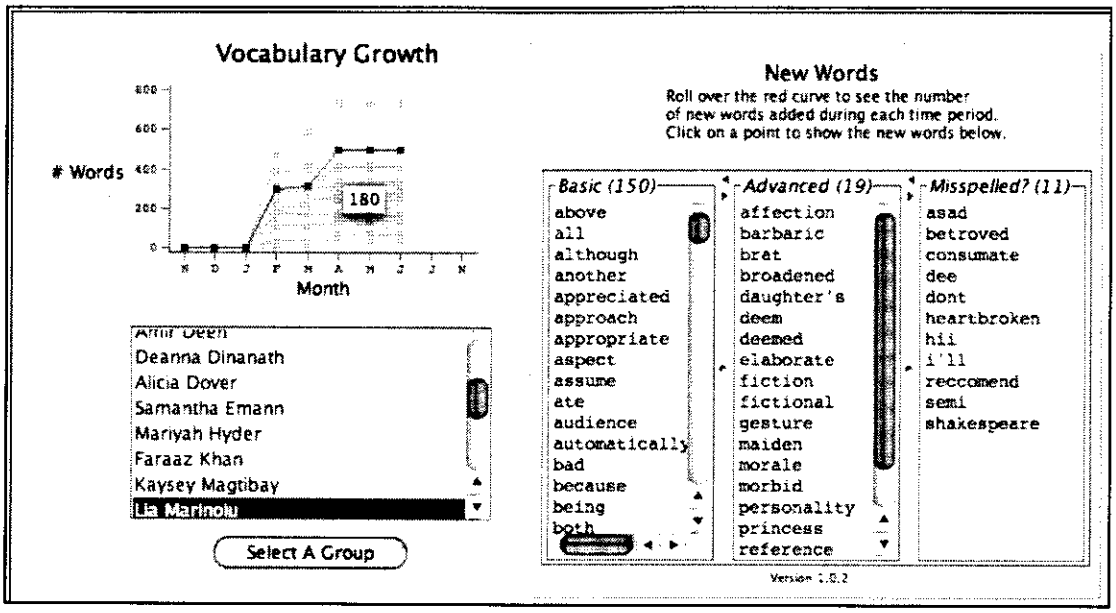


Figure 8. Knowledge Forum's 'Vocabulary Growth' assessment tool, showing a grade 12 Writer's Craft student's vocabulary growth over time.

Here we see that a student's (Lia Marinolu's) vocabulary grew by 180 words between March and April. The columns on the right show what these words are, and make a distinction between 'basic' and 'advanced' vocabulary.

'Writing' Assessment Tool

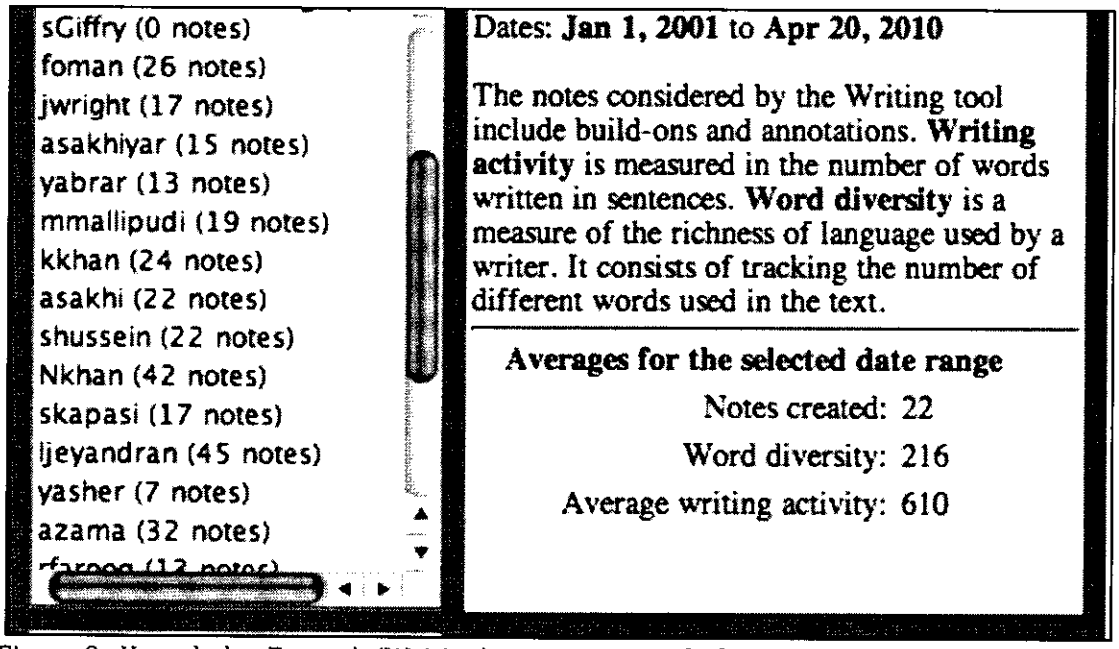


Figure 9. Knowledge Forum's 'Writing' assessment tool, showing E. Galli's grade 8 class' writing growth over a period of time.

The Writing assessment tool indicates average writing growth for a group over time. The left column indicates the number of notes contributed by each student in the group. Writing activity is measured by the number of words in a sentence. Word diversity indicates the richness of language. Clicking on a student's name from the left column yields graphical data for that particular student. In this case, we have selected the student with username 'asakhi':

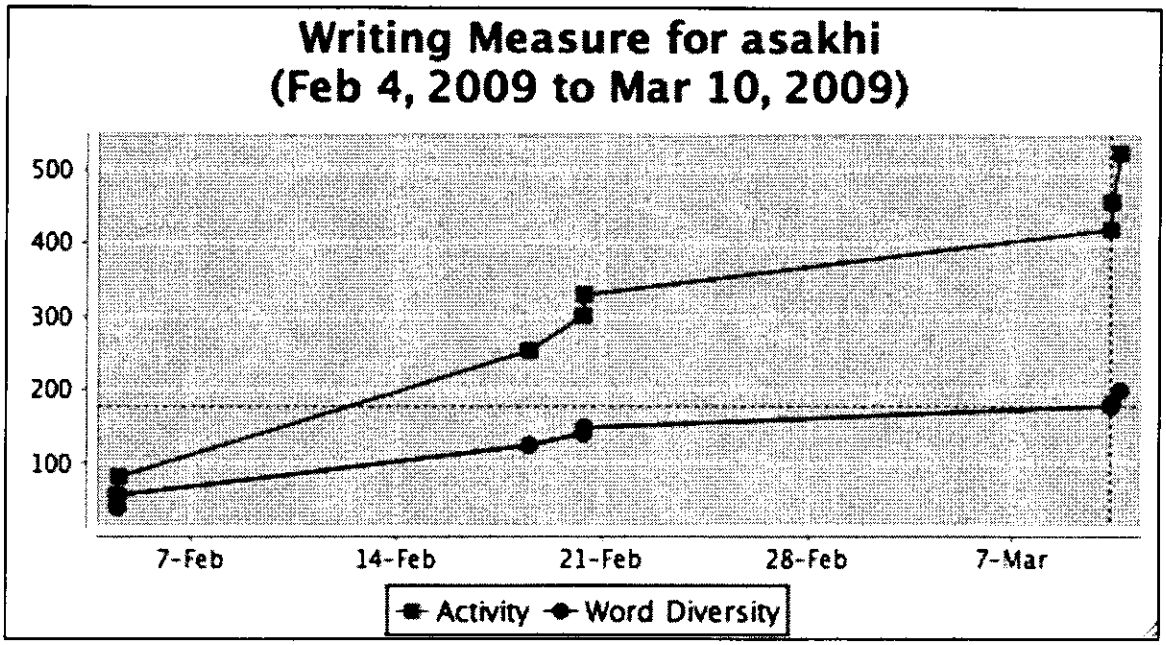


Figure 10. Writing measure for student with username 'asakhi'.

Students and teachers were excited by these tools. In subsequent reflection interviews, students of all KBCA classes repeatedly mentioned that they used these tools for self-assessment and that these tools served as motivating factors for their continual skills improvement.

At this point in the KBCA project, all classes were actively working in the Knowledge Forum spaces and teachers had created several different views in which their students were contributing. What follows are some screenshots of their progress.

Grade 6 Class' Early KF Work

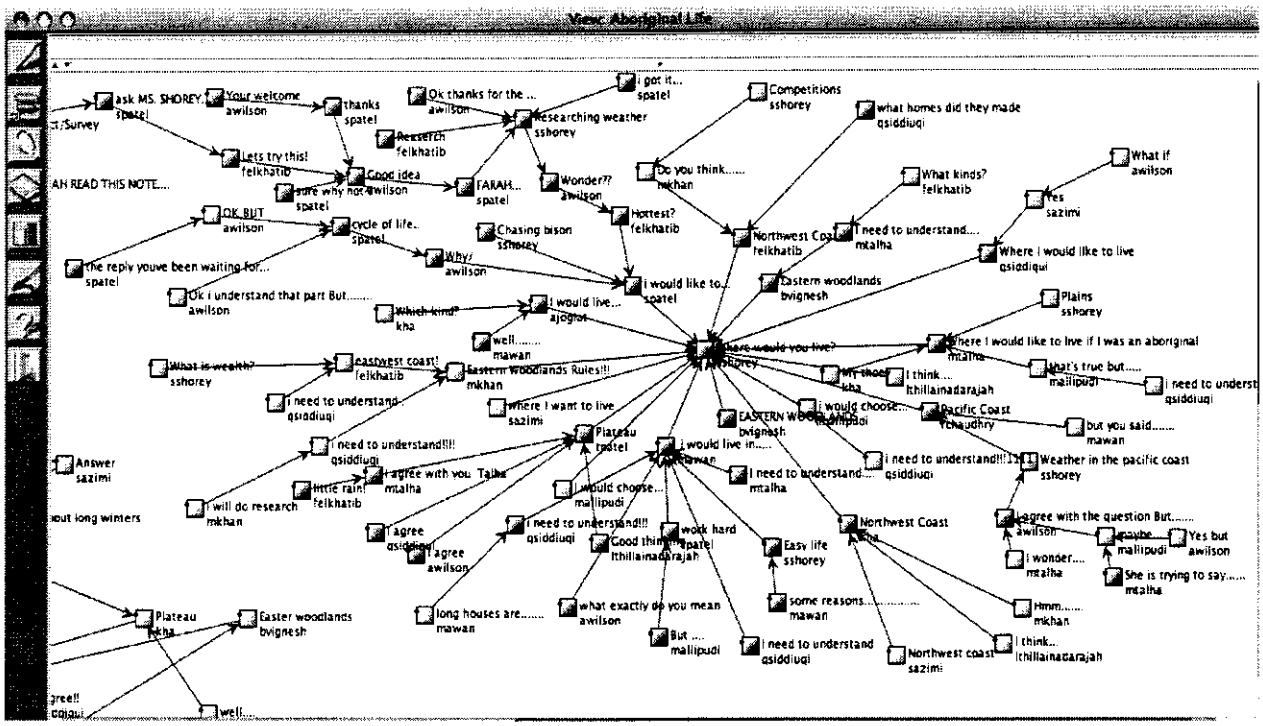


Figure 11. Grade 6's KF view, "Aboriginal Life".

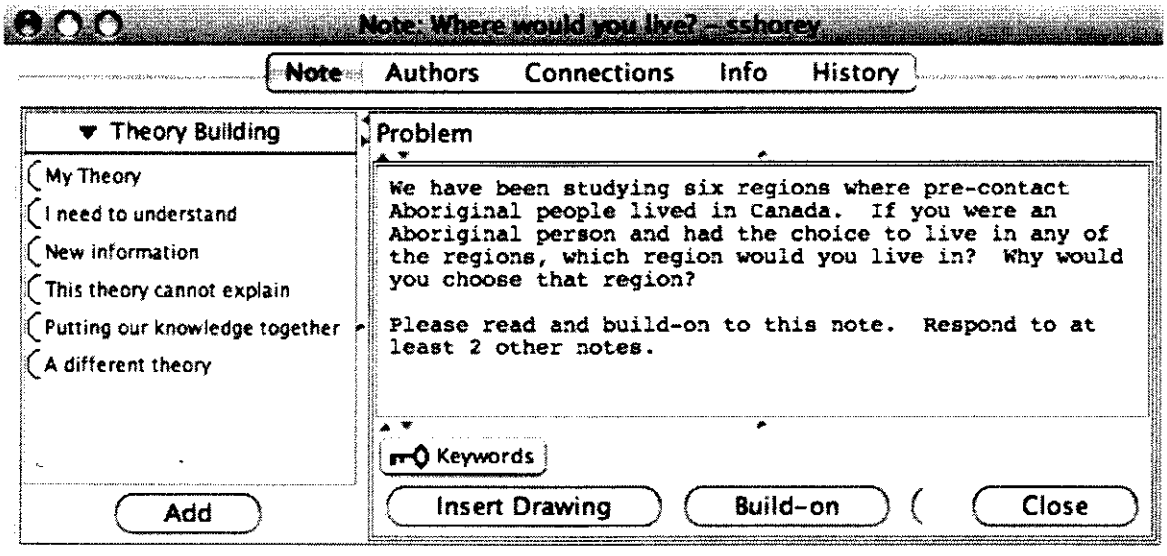


Figure 12. S. Shorey's (Grade 6 teacher) initial discussion prompt, posted in the "Aboriginal Life" KF view (Fig. 11).

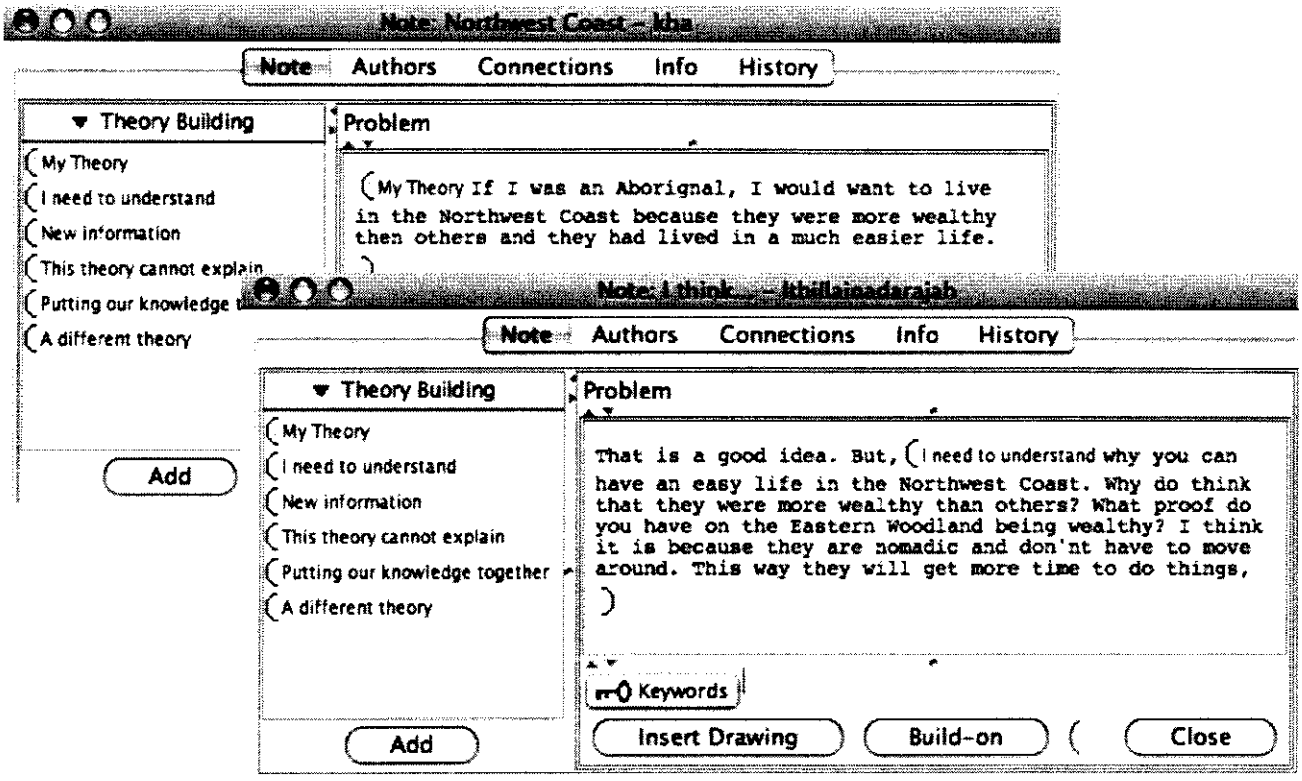


Figure 13. A short grade 6 student discussion thread in response to their teacher's initial discussion prompt (Fig. 12).

From the grade 6 student notes in figure 7, we can see that students are using the Knowledge Forum scaffolds (i.e. the yellow brackets) as prompts for their thinking. There is evidence that they are using the PQP framework in their notes and are challenging one another to go deeper with their research and with their ideas.

Grade 8 Class' Early KF Work

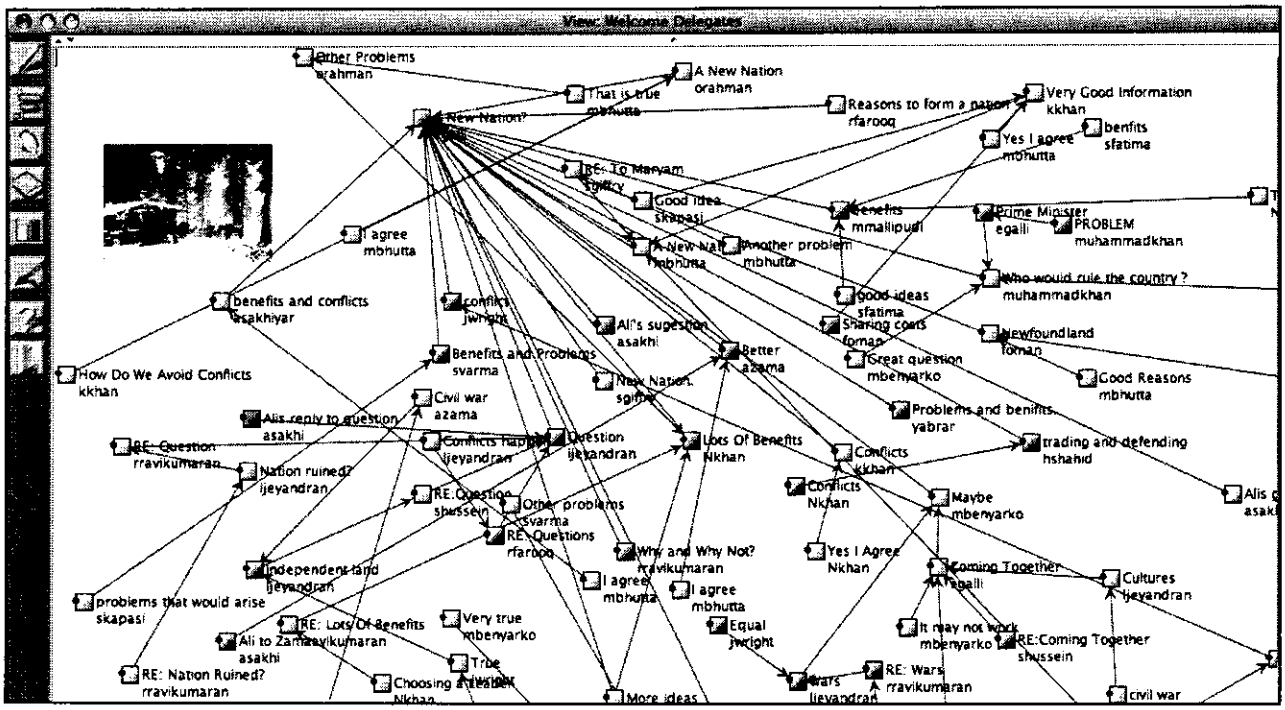


Figure 14. Grade 8's KF view, "Welcome Delegates".

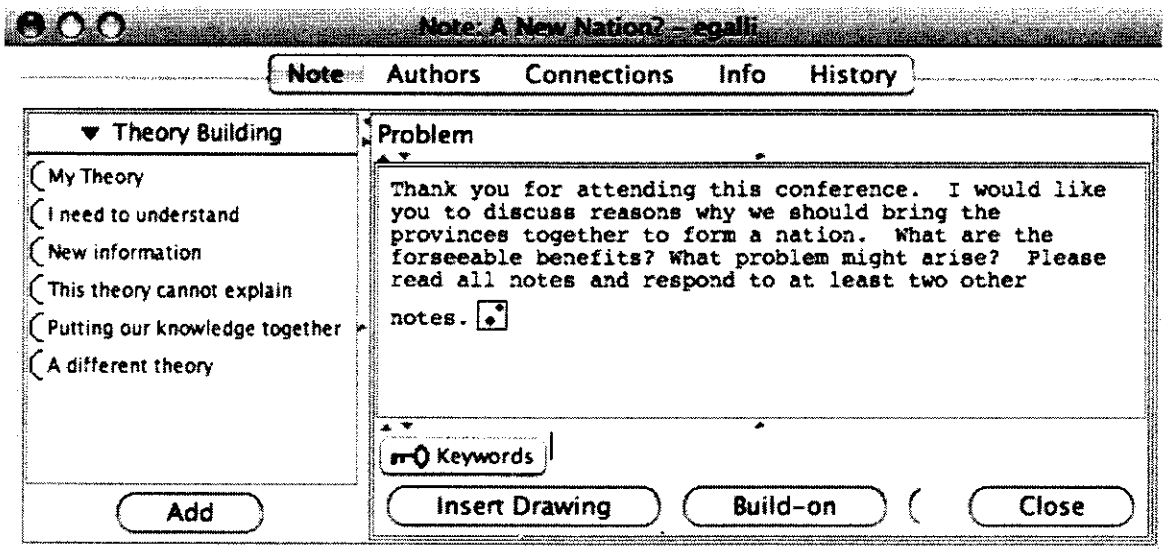


Figure 15. E. Galli's (grade 8 teacher) initial discussion prompt, posted in the "Welcome Delegates" KF view (Fig. 14).

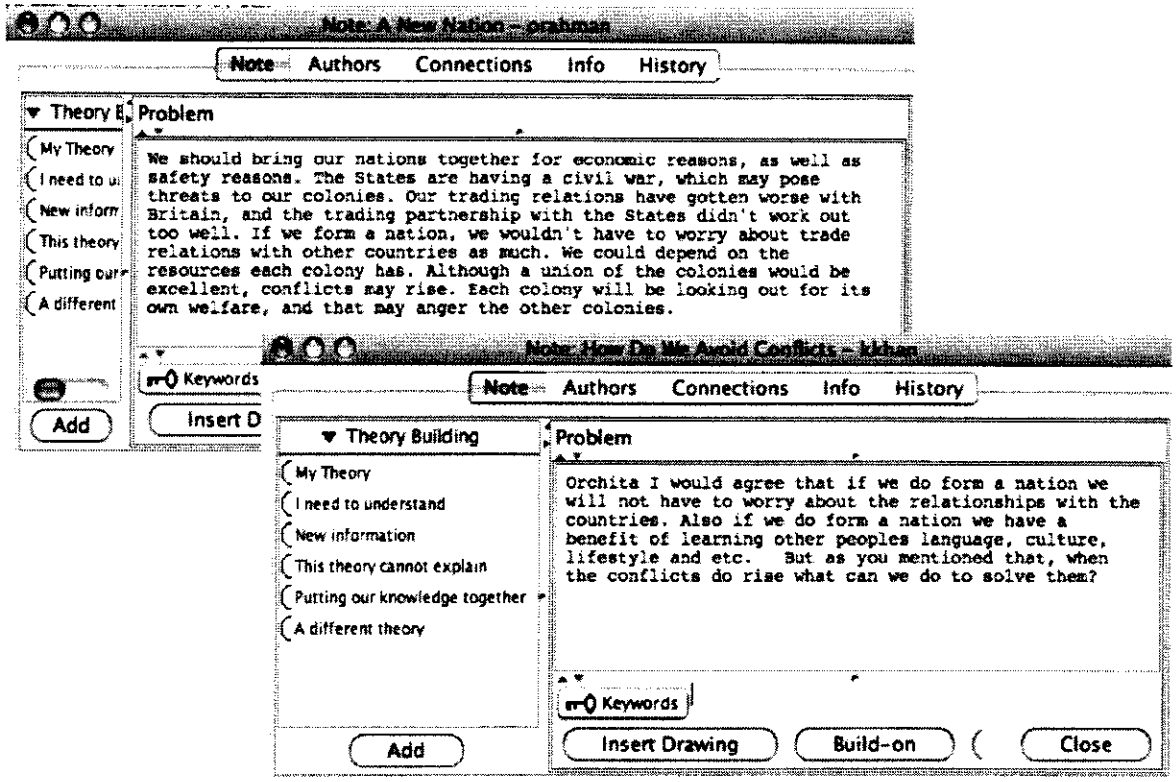


Figure 16. A short grade 8 student discussion thread in response to their teacher's initial discussion prompt (Fig. 15).

Grade 12 Economics Class' Early KF Work

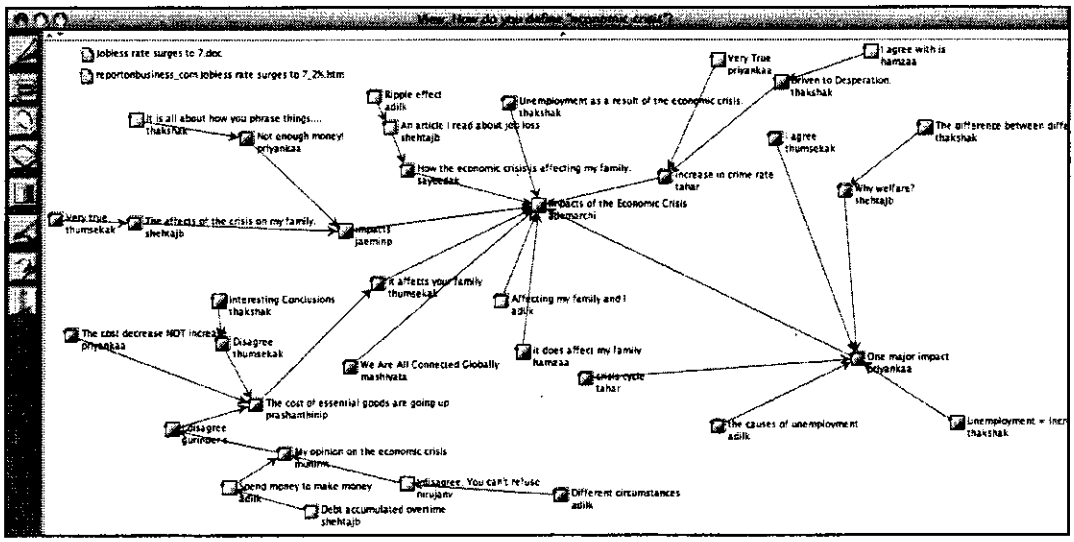


Figure 17. Grade 12 Economics class' KF view, "How do you define 'economic crisis'?". Observe in the top-left corner that the teacher has inserted an article (DOC file) and a website (HTM file) for students to read.

To initiate discussion the teacher posted a discussion prompt: "Is the 'economic crisis' affecting you and your family?" The following is a short student discussion thread in response to this.

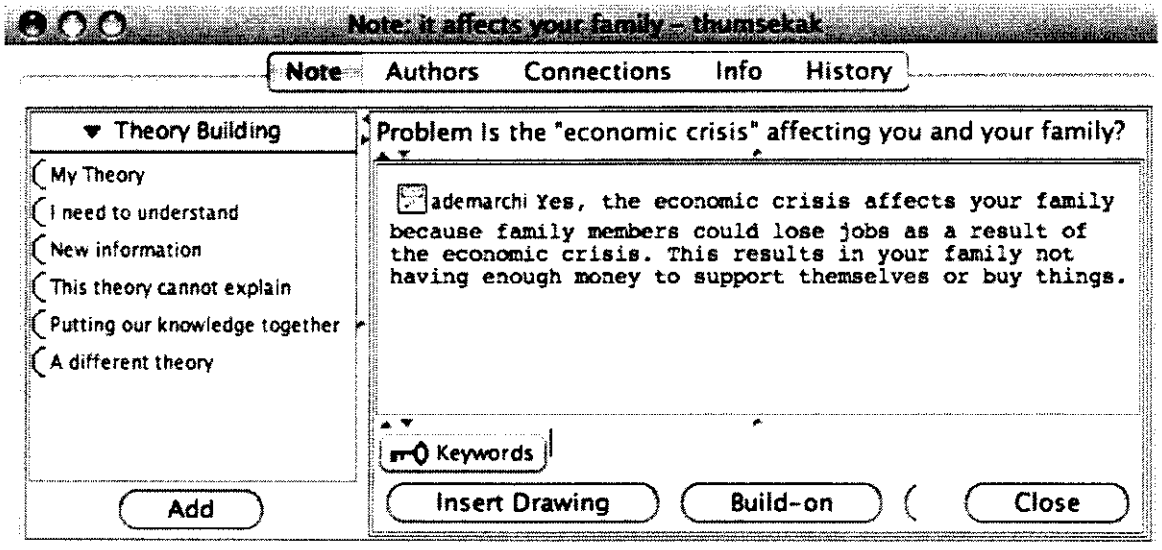


Fig. 17a

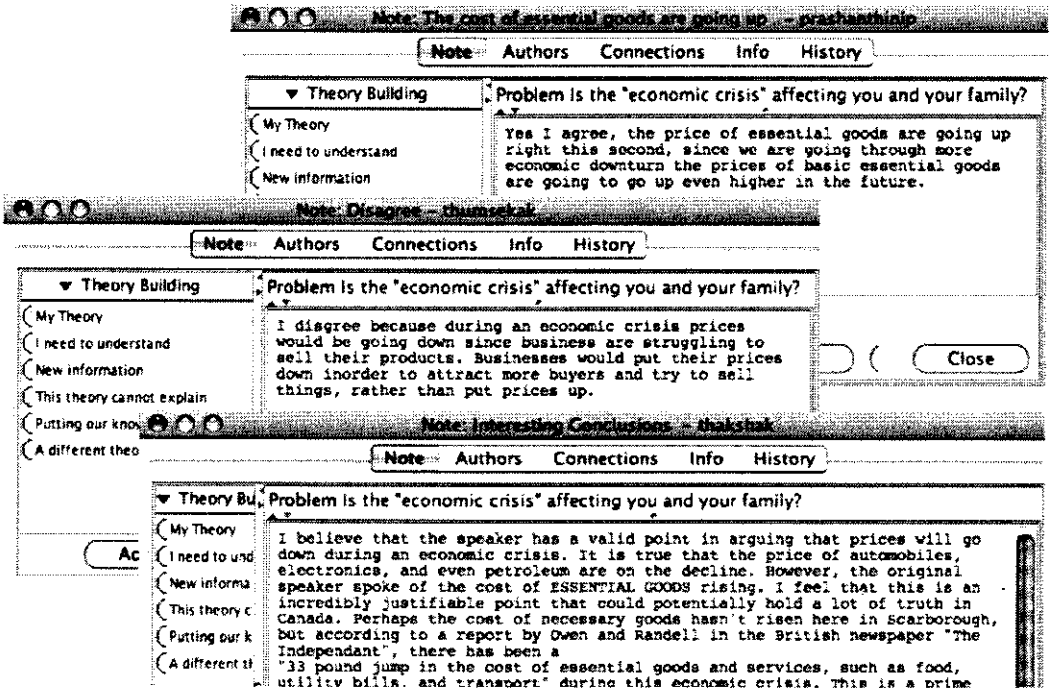


Fig. 17b

This was the beginning of the new semester and these students were new to the course. Although the grade 12 economics teacher (A. De Marchi) had meant for this particular KF view to be an introductory economics discussion as way of allowing his students to become familiar with the new learning environment, new learning approach, and personally connecting with the new subject matter. It is evident that the students became quite deeply immersed into basic economic principles rather quickly, despite the teacher's surface-level question.

Grade 12 Writer's Craft Class' Early KF Work

Grade 12 economics has a curriculum in which there is much content that needs to be "covered" with students. By contrast, grade 12 Writer's Craft is a skills-based curriculum in which the development of writing is emphasized rather than subject-matter content. Hence it is not surprising to see that the grade 12 Writer's Craft teacher, M. Obcena, used Knowledge Forum differently than the economics teacher. Initially, Obcena used KF as a medium for external resource sharing and later, as a writer's guild where students peer-reviewed one another's writing.

The following are screenshots of the grade 12 Writer's Craft class' "Poetry We Like" view, followed by a student discussion thread from that view. Again this was the start of a new semester and these students were new to the course.
Figure 18. Grade 12 Writer's Craft class' KF view, "Poetry We Like".

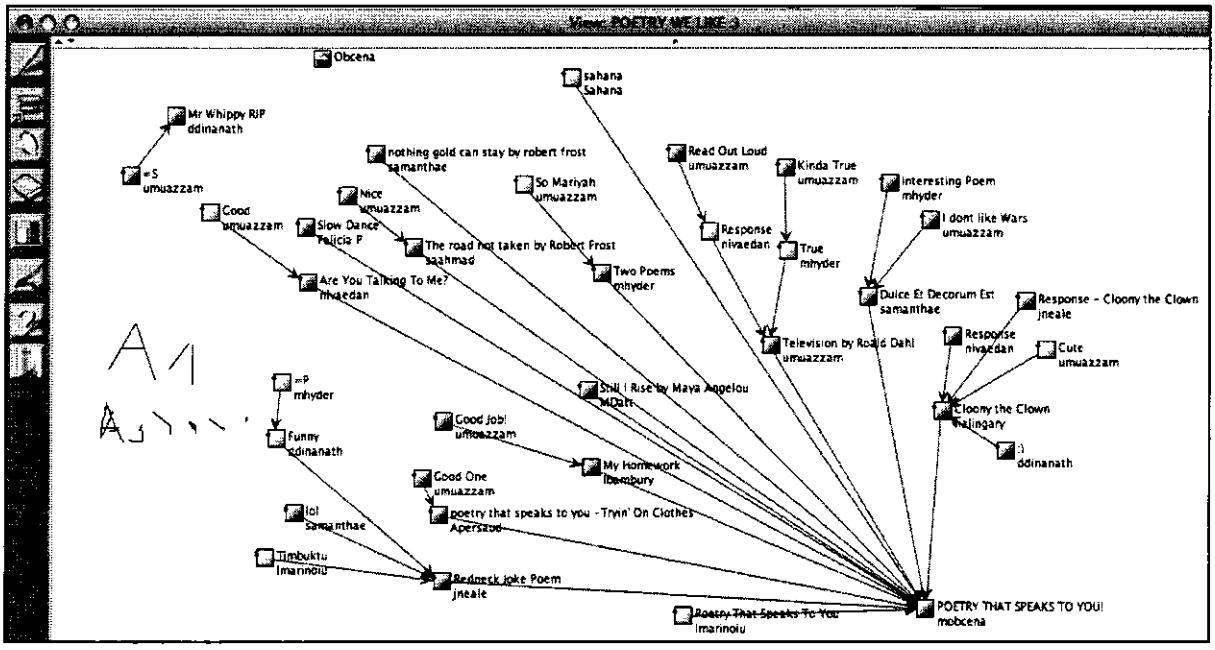


Figure 18. Grade 12 Writer's Craft class' KF view, "Poetry We Like".

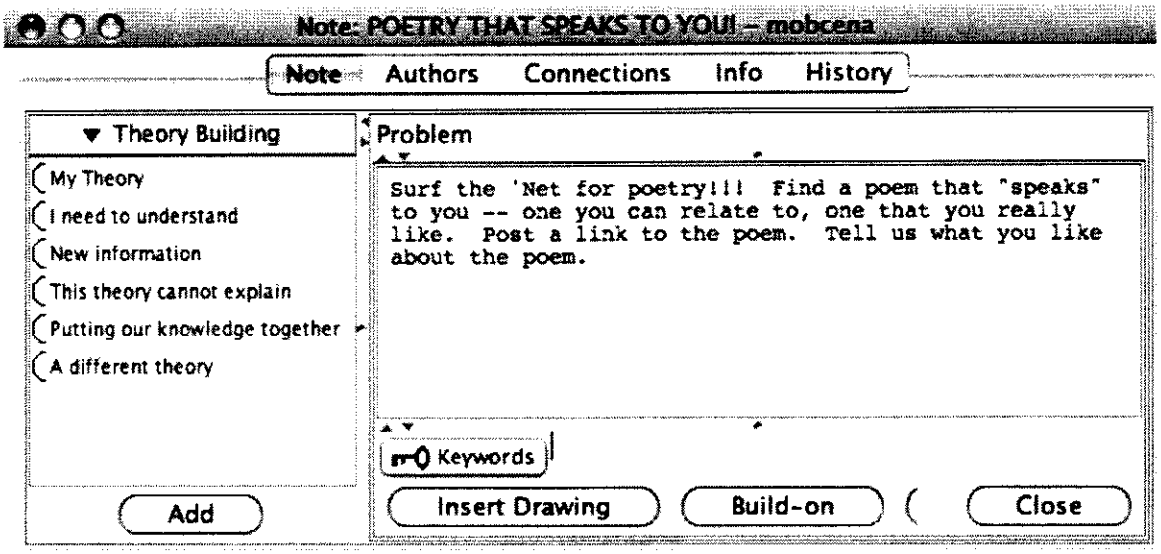


Figure 19. M. Obcena's (grade 12 Writer's Craft teacher) initial discussion prompt, posted in the "Poetry We Like" KF view (Fig. 18).

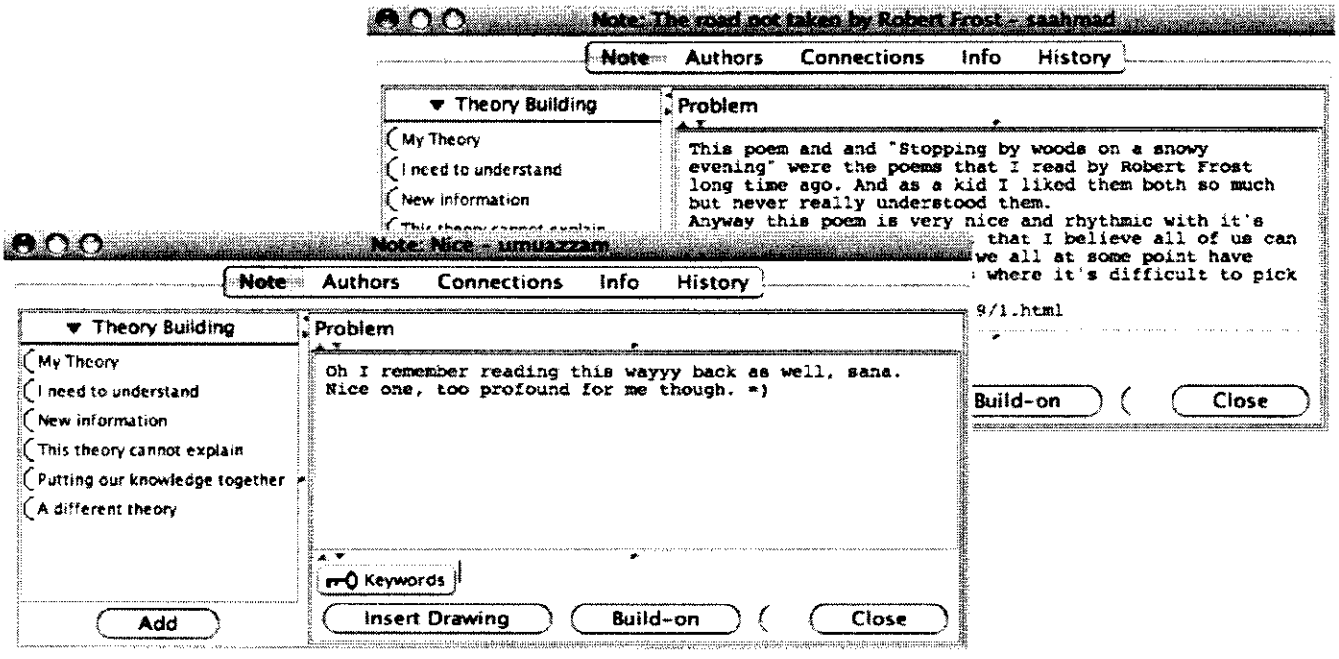


Fig. 20

Bearing in mind that this group of students were new to the course and new to each other, this particular type of introductory asynchronous discussion activity is a good way to promote community building among the students. Constructivist knowledge building can only occur if there is a certain amount of trust and rapport among the students and with their teacher.

Phase 4.2 Teacher Reflections

Teachers and designated students participated in their 2nd of 4 video-recorded reflection interviews in this phase of the KBCA project. The teachers described how their own teaching was progressing through their participation in the KBCA project, as well as how their students' knowledge building in the KF environment was progressing.

Face-to-face classroom discussions no longer need to end with the end of the class period. These discussions are continued online in KF, resulting in richer discussions and hence, richer learning:

> Knowledge Forum is a tool that's allowing me to continue discussions on the same kind of content from the classroom to the online KF environment and vice versa. *(M. Obcena, grade 12 Writer's Craft teacher)*

The teachers were improving their questioning techniques, felt more effective at facilitating the online discussions, and were becoming more comfortable with allowing their students to direct their own learning. They observed that when students directed their own learning, it sometimes led them to inquire about topics that were deeper in scope than originally planned by the teacher:

> We started with a plan of how we were going to proceed and an end task. But part of the reason I like the KF is that once they (the students) are there, they can develop their own interests and their own questions and their own ideas. Which means that we do deviate from the plan that I, the teacher, has set; because they have to develop their own ideas and I've given them that freedom. I think my own teaching has developed in the KF environment because before, I would guide their research - guide their thoughts and their learning more. Here, I give that opportunity not to be successful and I think this is the first time I've ever done that. So for instance, in the KF, students have been very interested in comparing data from the Aboriginal time period about climate and weather, to today's data about climate and weather, and to see if there's been any change and what could have caused that change. They're looking at how the Aboriginals used the environment, how we use the environment, and how that's changed the interactions we've had. The students have really gone into exploring that, and they've actually looked at data from other countries. They've started asking, "Were there Aboriginals in those other countries and did those Aboriginals survive in the same ways the Aboriginals we've studied in Canada did?" So they've really expanded their research and I think that's progressed my own teaching. You know what? If they come up with a roadblock, they have other means! They'll figure that out on their own, I don't need to guide them to the right answer. They have their own strategies for figuring things out. I think my teaching has progressed. They're much more independent. I'm much more an observer, and I'm more comfortable with that, which is great! *(S. Shorey, grade 6 teacher)*

> This gave them a sense of empowerment and it really made them take off, realizing that they are the ones directing their education, not the teacher anymore. It's like I can't give them enough! I can't give them enough questions to feed their appetite! So they've really progressed. Their skill levels have started to develop. They're starting to use the Knowledge Building Principles. They like interacting with one another as opposed to just sitting there absorbing information and getting things from a textbook, or just doing small group activities in the classroom. They can really see that they can add to the discussion, they can add to theories that they don't have to look at somebody's argument from a textbook and take it at face value and say, "These are the various viewpoints, choose one of them and believe in it". Now they can take a look at it and say, "Maybe it's not necessarily true, and here's my opinion as to why," and then back it up with credible resources that they find from the real world or from internet research. *(A. De Marchi, grade 12 Economics teacher)*

Teachers also noticed that because the students were writing for each other, they were taking more care in their writing when composing KF note postings, as evidenced by the "History" function in any KF note:

> ...if you look at a note's history, some of the students do that as well – they'll post a comment and another person will comment or build onto their note, they'll realize that their initial note perhaps wasn't clear or perhaps required additional information. Instead of posting a new note, they'll go back and they'll revise. *(M. Obcena, grade 12 Writer's Craft teacher)*

One teacher in particular was delighted to see that her students were more reflective in their learning. Furthermore, they were taking ownership of their own learning as well as that of their knowledge community to the point that they were assessing the validity of each other's facts in a respectful and caring way:

> Their questioning techniques have greatly improved. In our classroom, we've created a bulletin board with post-it notes, so it works like Knowledge Forum – where you write down your question, or your Praise-Question-Propose theories on a post-it and then put it on the bulletin board. I think they're more reflective about their own learning. They're more interested and motivated because they know they can diverge and I'm going to be comfortable with that. They know there's not the textbook right answer. Someone will post, "I read in a book 'that'..." and the fact is wrong. At first, I would have a class discussion and ask, "Did you really read that in a book?" and going back to that strategy. But then I noticed that some of the other students were jumping into KF posting, "What book did you read 'that' from, because I never read 'that', I read 'this'!" I'd read a note posting with an incorrect fact and think, "Oh, they shouldn't post that online, that's not correct, I don't want the other students to read that..." The other students were responding with notes like, "I've never read that. I don't know if that's really true. Maybe you should read that book again, or can you bring that book and we'll talk about that more?" So it's solved that challenge for me, which has been another interesting learning experience – that the students

can guide their own learning, and they can question each other, and be successful." *(S. Shorey, grade 6 teacher)*

Phase 4.2 Student Reflections

In their 2nd of 4 reflection interviews, students were asked how they thought their learning, reading, and writing had progressed thus far as a result of their knowledge building activity on Knowledge Forum.

Surprisingly, the students thought the absence of a spell checker on Knowledge Forum was a benefit to them, as it made them more aware of their own grammar and spelling and gave them an authentic reason to edit their notes prior to posting them to KF. Furthermore, they had to write online using formal language rather than casual MSN lingo – a new experience for all of them:

> When we're using Knowledge Forum, there's no spell check on there, so we have to spell check everything ourselves, and make sure that our grammar is proper. When you're on Microsoft Word, the computer does it for you, so you kind of get lazy, but this way, we're actually learning more because we have to check it ourselves. It helps us become better writers because we're not writing like how we write on MSN, we have to actually use proper language, so it's actually helping us develop our reading and our writing skills. When we read other people's comments and we get to learn their ideas, we're actually taking in more information – like analyzing what they're saying, so that's helping us develop our reading skills too. *(Thaksha, grade 12 Economics student)*

> While I've been using Knowledge Forum, I've been trying to be more coherent in the way that I give my answers, so I'm trying to develop them (my postings) so that everybody can understand it. I'm editing it more so that people don't find a lot of mistakes and they don't say, "I don't understand." I'm thinking more about my answer, whereas when I'm speaking, it's really hard to come across as clear as I can in my writing. I'm becoming clearer." *(Lakesha, grade 12 Writer's Craft student)*

Some students found the Knowledge Forum "Writing" and "Vocabulary Growth" assessment tools to be especially helpful for tracking their own skills development:

> I think it really has improved my reading and writing skills, mainly because of that program that Knowledge Forum has, that evaluates your reading and writing skills. You can actually see the graph and it lets you evaluate your own progress – you can see the graph going up or down over time, and it helps you become a better writer. *(Mashiyat, grade 12 Economics student)*

The grade 6 students observed that they had always used the computer and the internet as a source of information from which they would pull their new knowledge or information. This was in contrast to their current usage of technology to access their peers' knowledge and ideas, and to share their own knowledge and ideas with their peers, "...you're teaching

something and learning something back" *(Lathiha, grade 6 student)*. Bavi, a shy and quiet boy, commented that he was afraid to raise his hand in class, but he enjoyed interacting with his classmates online via KF. These grade 6 students were developing a sense of improvable ideas – one of the 12 knowledge building principles (Scardamalia, 2002), in community knowledge building:

> It's kinda like you're in court. You want to make your point and they (a classmate) want to make their point, both of you could probably put your ideas together and make one point. *(Antonette, grade 6 student)*

Many students commented on how much better they were able to learn from each other, and expressed delight in being able to read contributions from students who would not normally speak up in class. They appreciated the idea diversity – a knowledge building principle (Scardamalia, 2002) - being able to build upon the ideas of their peers and to combine these with external resources which they could easily share in a KF note. All this allows the knowledge building community as a whole to learn together – what Scardamalia (2002) would call 'symmetric knowledge advance', another of her 12 knowledge building principles:

> With the textbook, you just have one person's voice throughout the textbook – their ideologies, and they might be biased in what they're thinking. *(Chris, grade 12 Economics student)*

> ...but with Knowledge Forum, you can hear what your peers have to say and you can add your own theories, you can ask questions, and if you don't understand, you can use other sites or videos or links from other internet sources; and gather all kinds of information and learn from everyone in your class! You can't do that in class, but with Knowledge Forum, you can, so it's just great because everybody learns together. *(Mashiyat, Grade 12 Economics student)*

Phase 4.3: Knowledge Building Follow-Up #2

Just over 4 weeks after starting community knowledge building in Knowledge Forum, teachers began to conclude their Knowledge Forum activities in preparation for product creation, or what the Ontario School Library Association would call the "Stage 4: Transferring Learning" (1998).

Phase 4.3 Teacher Reflections

At the conclusion of their knowledge building work in Knowledge Forum, teachers were asked how they have grown professionally, as well as how their students have grown form the experience.

The teachers found their month-long constructivist knowledge building work and access to Knowledge Forum to be an exciting approach to teaching. They were happy to see that their students were highly engaged and demonstrated what Scardamalia calls "epistemic agency" – 1 of the 12 knowledge building principles, when learners:

> ...set forth their ideas and negotiate a fit between personal ideas and ideas of others, using contrasts to spark and sustain knowledge advancement rather than depending on others to chart that course for them. They deal with problems of goals, motivation, evaluation, and long-range planning that are normally left to teachers or managers.
>
> (Scardamalia, 2002, p. 10)

It was evident that the teachers had successfully implemented a new methodology in their teaching practice, with varying success as observed by this researcher. Moving to a constructivist approach was a big epistemological shift for these teachers. What they were able to accomplish in such a short period of time, especially with respect to changing their personal conceptions of what type of teacher they were, was indeed remarkable. The KBCA teachers only had about a month to fulfill the knowledge building aspect of the project, and this researcher had not any grand expectations of deep knowledge building to occur with the students. Be that as it may, all KBCA teachers saw evidence of the benefits of using a constructivist approach among their students.

> I think that the intellectual underpinnings of 'constructivist knowledge building' is unassailable: teachers and students alike are LEARNERS and there's no such thing as knowledge that's the be all and end all of any given 'truth.' I found it very enlightening listening to Cresencia Fong explain to us at the beginning of this process what 'constructivist knowledge building' was. Prior to this, I understood in an intuitive way the importance of having my students be part of the knowledge 'building' process but having it articulated in language crystallized the concept for me. Incorporating the above in my teaching practice takes place in a variety of ways already; using Knowledge Forum and/or Audacity software facilitates this through the use of technology but the principles of constructivist knowledge building can be incorporated into teaching practice without ANY use of technology. *(D. Jaksic, Teacher-Librarian)*

> The experience has epitomized the necessity to have open-ended questions. As teachers, we should be using open-ended questions regularly to encourage higher order thinking skills. With knowledge building and Knowledge Forum, if you don't have those "good questions" set up, the discussion and notes will be stifled. This experience has also validated for me, how students learn. They learn through creating, they learn through technology, and they need to be engaged. So there is room for the paper and the pencil in the classroom however, this is exciting learning. And they really, really enjoyed it! *(E. Galli, grade 8 teacher)*

> I'm understanding how media is very powerful and how we can easily integrate it into the curriculum. The kids love to use it, and it's a powerful tool that engages them. It's made me aware that it's not just me teaching curriculum, that they too can also lead discussion regarding various topics. They can engage themselves, they don't always need a teacher in front of them. There's some kind of anonymity with Knowledge Forum which allows them to take more risk and it makes them feel like they're a predominant player in their learning. They're helping other people learn as opposed to

being a passive person who doesn't necessarily want to express their opinion in a classroom, but is more than willing to do it in their own home behind a computer. That increases their ability to express themselves, which increases their confidence level; and that's what you want them to have. *(A. De Marchi, grade 12 Economics teacher)*

Phase 4.3 Student Reflections

Student reflections about their knowledge building and Knowledge Forum experience indicated that they were excited by their learning experience, developed confidence through it, and were genuinely interested in developing deeper understanding of their topic.

> We've learned how to think outside the box. We've learned from each other, we've learned from our teachers, we've expanded our learning...We're just more comfortable. *(Orchita, grade 8 student)*

> ...yeah, more confident! *(Sohum, grade 8 student)*

There is evidence that some students internalized Scardamalia's knowledge building principle of "embedded, concurrent and transformative assessment" as well as the principle of "improvable ideas":

> When I wrote new KF notes, I took some comments that people wrote, then I checked if it's right or not, like from the library and other resources. I took those information that I got and I used those for my own learning. *(Bavi, grade 6 student)*

Another one of Scardamalia's knowledge building principles that seemed to have been internalized by some students was "community knowledge, collective responsibility":
I've grown as a learner and I've been able to accept other people's ideas easier. I have other people contrasting my ideas, so I can go back and refine my own ideas. So basically you make a statement, someone tries to refine it. Then you go back and you develop a better theory. *(Chris, grade 12 Economics student)*

> When I'm writing, we have to do something called PQP. P is for 'praise', Q is for 'question' and P is for 'propose'. Once you read someone's KF note, you have to praise their idea – or some part of it, then question them about their post – like maybe you want to know something more about it, and then you have to give your opinion on it. So you're building knowledge onto each other. *(Lathiha, grade 6 student)*

The grade 12 Economics students commented about their intensely stimulating Knowledge Forum discussion regarding their chosen economic philosopher. It is evident from their KF postings and their reflections, that they developed an excitement and a deep understanding about these economic philosophies through their KF discussions and classroom knowledge building talks:

> We have to choose one economic philosopher who we believe will help our economy thrive. *(Mashiyat, grade 12 Economics student)*

> I decided to go with Adam Smith and capitalism. So I put my idea forward, and then they (classmates) countered me by saying that, "It's the greed". Adam Smith's philosophy is 'self-interest rules all', and that's what governs free market. So they (classmates) wrote that, "It's the greed of the bankers that caused the economic crisis." After they wrote that, I had to reframe and refine my idea by saying that, "That's not Adam Smith's philosophy, that people could be greedy." I had to defend it! *(Chris, grade 12 Economics student)*

Students commented that until now, they were accustomed to using the internet for research and information mining, and using various word processing and presentation software to produce an 'end product' of their learning. Using technology for peer-to-peer communication as a means of learning was a novel experience:

> For us to communicate through technology – I think it's a really good idea. It also helps us learn a new skill...I think it's a way to get to the younger audience and the younger generation. *(Thaksha, grade 12 Economics student)*

From this point, the project proceeded onto Phase 5 in which the middle school students created digital comics and the secondary students created podcasts to demonstrate their learning. Since the scope of this paper is to focus on the constructivist knowledge building portion of the KBCA project, phase 5 will not be discussed. Suffice it to say that the final products were rich with subject matter understanding, and greatly enhanced by the new media format of these products. The students and teachers gained further technical skills in the use of Comic Life or Audacity software, and had fun along the way!

Conclusion

Two middle school classes and two secondary classes along with 2 classroom teachers and 1 Teacher-Librarian from each school, participated in the 6-8 week classroom implementation of the Knowledge Building Culminating Activity (KBCA) project. Although it was a short project, the teachers and teacher-librarians were able to make an epistemological shift in their conception of their role as teachers – from 'sage on the stage' to 'guide on the side'. In parallel, their students became active community knowledge workers and developed epistemic agency in their community and personal learning. Further opportunities to continue such teaching and learning approaches would certainly help these teachers and students to continually develop their constructivist knowledge building skills. It is our hope that these 4 teachers and 2 teacher-librarians will continue to hone their constructivist and ICT skills, and build capacity at their respective schools by sharing their new knowledge with their school staff – thereby becoming change agents for their school community.

As previously mentioned, one does not need computer technology to do constructivist knowledge building with students, though technology does enhance the experience. Face-to-face knowledge building talks can occur in the classroom. If a more permanent record of the discussion is needed, one can mimic the Knowledge Forum discussions in the classroom by having students write their PQP postings on sticky notes and posting these to a bulletin

board in the classroom. String or chalk-drawn lines can be added to indicate notes that build-on to other notes.

Furthermore, Knowledge Forum is not the only type of software that can be used for constructivist knowledge building asynchronous discussions. Any software that allows for threaded discussions can be used for this purpose. However, Knowledge Forum was specifically designed to support the pedagogy of constructivist knowledge building, hence the deliberate barrenness of the environment, the scaffolds, and other technical affordances unique to this software.

The constructivist knowledge building approach to learning is an effective way to prepare today's students to be knowledge workers for the knowledge society in which we live. It maps nicely to the OSLA's research and inquiry model as well as to the Ontario Achievement Chart. This, in conjunction with the integration of ICT as a means of facilitating knowledge building, and as a means of producing an end-product to demonstrate learning, encompasses 21st century skills development.

May the journey continue...

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Getting to the Heart of Assessment & Evaluation

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Usha James
Instructors in Teacher Training
Ontario Institute for Education,
Toronto, Ontario

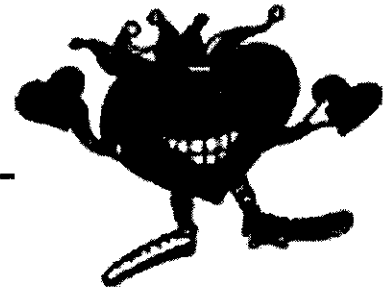
The power point slides following are captured from a presentation the authors have adapted to share their experiences with the role of teacher librarians as assessors of learning.
The presentation can be heard on the TM Canada wiki http://tmcanada.pbworks.com/
At this site are additional resources to support this work.

Appendix 1: Civics Research Task - BEING AN INVOLVED CITIZEN: PARTICIPATING IN A COMMUNITY TASKFORCE

Appendix 2: Presentation Rubric – Issues to Action

Appendix 3: Generic rubric to Assess Research

Appendix 4: References



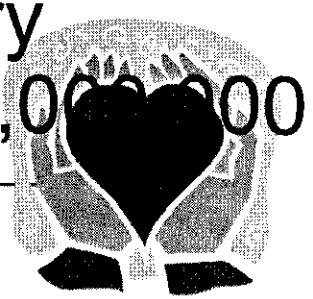
Getting to the Heart of Assessment & Evaluation

Treasure Mountain 2010

Usha James and Jo-Anne LaForty
OISE/University of Toronto

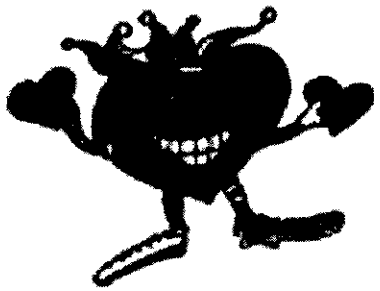
Who Wants to be a Millionaire Quiz

1. What is the main purpose of assessment and evaluation ? -$100.00
2. What is the difference between assessment and evaluation? - $500
3. How can teacher-librarians support teachers in best practices of assessment? $1,000
4. List 5 assessment strategies for learning you could use in the library to assess your students?-$10,000
5. What is the title of new Ontario Ministry resource that is still in draft form? - $1,000,000



Friendly Quiz

Goals/Agenda



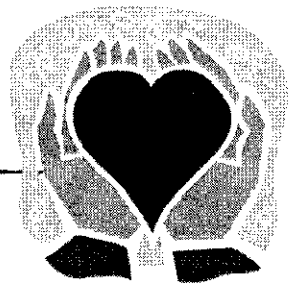
Setting the context and issues

Understanding types of assessment

Thinking about rubrics as an evaluation tool

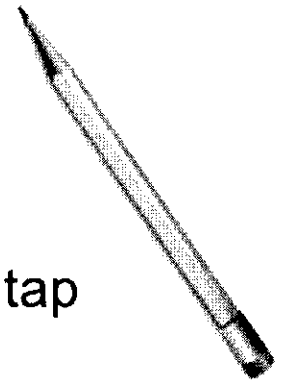
Providing solutions: Library application

Reflecting on your role



Tappers and Listeners: instructions & reflection

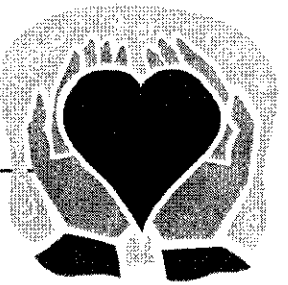
Instructions:
If you are with a partner, designate A person and B person
A=Tappers and B=Listeners



- Tappers: select a common song (e.g. Happy Birthday) and tap the rhythm for the listener (no humming)
- Listeners: once hearing the song tapped out (once or twice) guess the song.
- Switch roles

If you are not with a partner, click on the speaker icon to hear the activity modelled

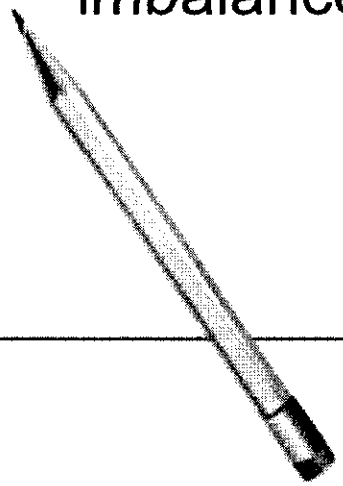
Reflection:
Listeners: Were you able to correctly identify the song?
Tappers: What were you feeling?
How might this relate to teaching and assessment?

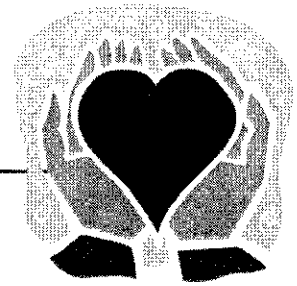


Tappers and Listeners -debrief

It's hard to be a tapper. The problem is that tappers have been given knowledge (the song title) that makes it impossible for them to imagine what it's like to lack that knowledge.

Both of these groups rely on ongoing communication, but, like the tappers and listeners, they suffer from enormous information imbalances.

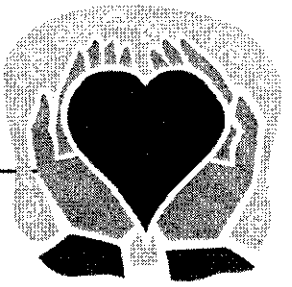




PRIMARY PURPOSE OF ASSESSMENT—

IS TO **IMPROVE** STUDENT LEARNING

assessment FOR learning



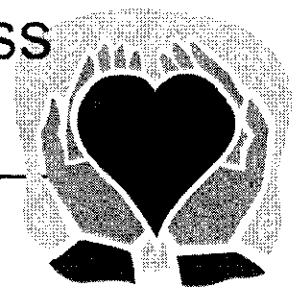
Paradigm shift . . . Assessment & Evaluation

Old paradigm – evaluation for marks

- all assessment was evaluated (marked & counted)
- focus was on "making the judgment", deciding the mark
- not considered for student learning

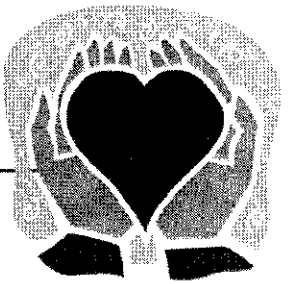
New paradigm – assessment for learning

- multiple assessment opportunities
- focus on student and teacher gauging the learning, and the gaps in learning
- teacher can adjust practice to ensure success



Here's the library scenario

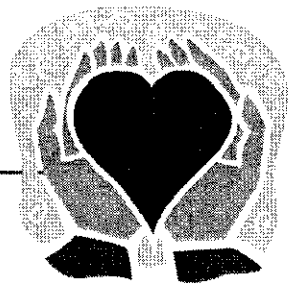
A new teacher comes to the library and tells you that almost half her class did poorly on the civics summative project. A number of students even plagiarized. Her department head suggested that she be pro-active and meet with you to discuss how you could support the classes next semester.



WHY?

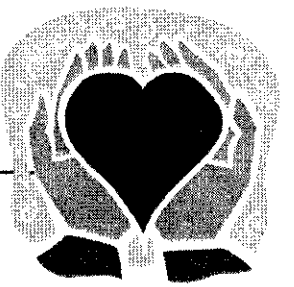
- Think about all the possible reasons why this might have happened
- Write down each reason
- Discuss with a colleague

Strategy: Think Write Share



Sort the Reasons

- What reasons related to design of the assignment? (summative)
- What reasons related to process? (formative)
- What reasons related to not knowing the students and their needs (diagnostic)

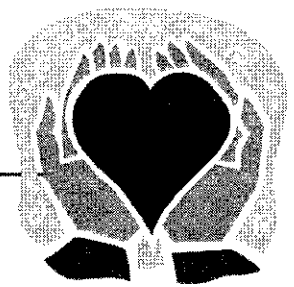


3 types of assessment

1. Diagnostic: finding out what the students already know
   - Completed at the beginning of unit

2. Formative: monitoring student learning throughout the process
   - Completed throughout unit

3. Summative:
   - Completed at end of unit



Current Practice: Backward Design

- WHAT? Start with the expectations (content and skills)

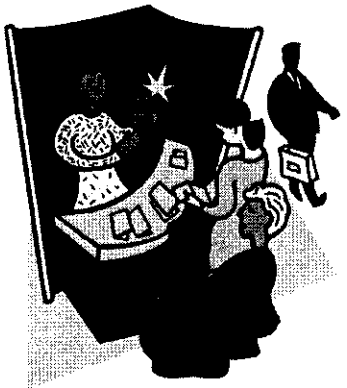
- HOW? Decide how students will show what they have learned & how you will monitor this (assessment)

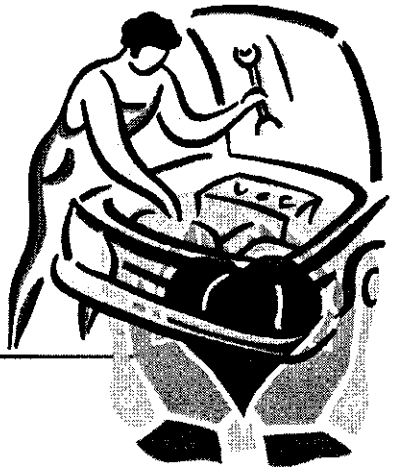
- Create lessons/activities for student learning and student success (working backwards)

3. Summative

- assessment that **wraps up** a unit, activity, course, or semester. Focuses on the student achievement and program effectiveness

Purpose: to engage the students in showing how well they understand and apply the unit expectations

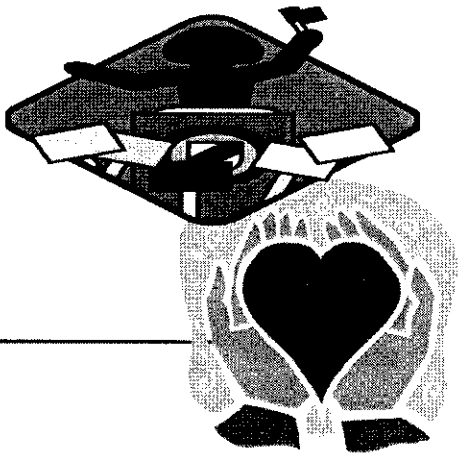




Being an Involved Citizen

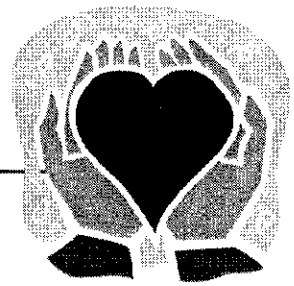
You and others in the city are interested in lobbying for _____. The mayor is undecided about this issue and decides to convene a task force to study the issue and make a public recommendation. The taskforce must be made up of people who have a stake or expertise in this issue and who bring different perspectives.

See Appendix One



Summative possible solutions

- Authentic and meaningful task
  - Invites critical thinking and judgement through exploring challenging questions or problems
  - Relevant to their world
  - Multiple perspective
- Student choice & ownership
- Clear guidelines
- Focus on process

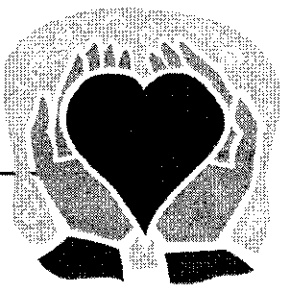


Rubrics for Learning – evaluation tool

Compare the two rubrics

- what are two things you like
- what are two things you don't like
- what suggestions would you make

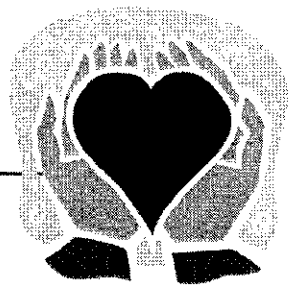
See Appendix Two: Rubric 1 & Rubric 2



Rubrics for Learning – debrief

- Issues to Action Presentation Rubric compared to
- Generic Rubric to Assess Research-based project

Further Reading:
Using Rubrics to Promote Thinking by Heidi Goodrich Andrade
http://www.smallschoolsproject.org/PDFS/coho103/using_rubrics.pdf



Consider Learning Skills/Work Habits

K - 12

- Responsibility
- Organization
- Independent Work
- Collaboration
- Initiative
- Self-regulation

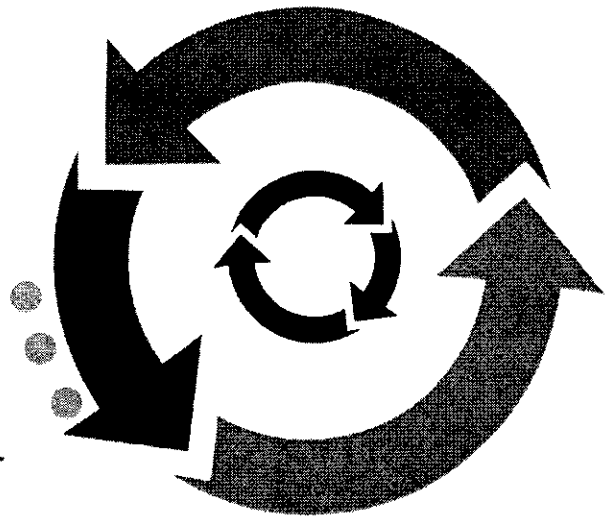
http://www.edu.gov.on.ca/eng/document/forms/report/card/HS_Semester_Final.pdf

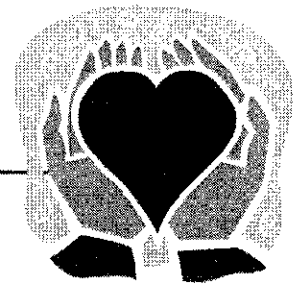
http://www.edu.gov.on.ca/eng/document/forms/report/card/ElemReport_PublicGr7to8.pdf

2. Formative

- **ongoing** assessment used to monitor student performance and provide feedback

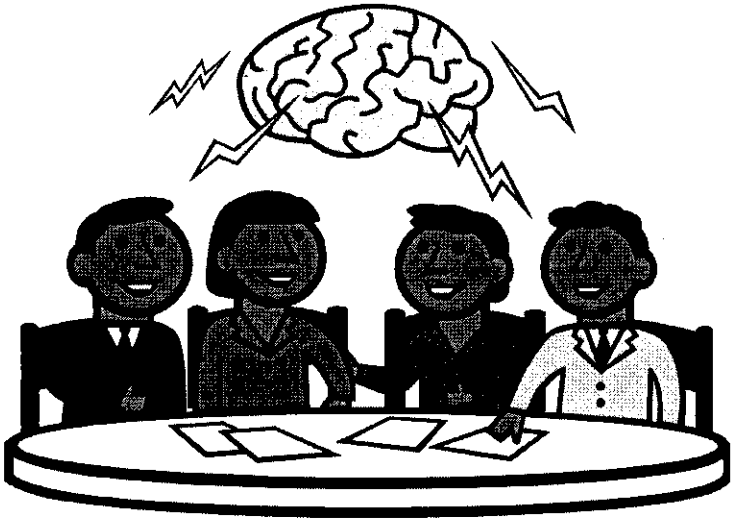
Purpose: ensure student understanding and success so teacher can modify lesson, activities and teachings



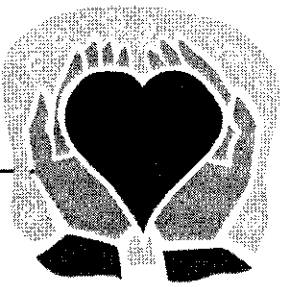


Thinking about formative assessment

- Go to Appendix three
- Read each learning opportunity and decide if it is good instruction or formative assessment

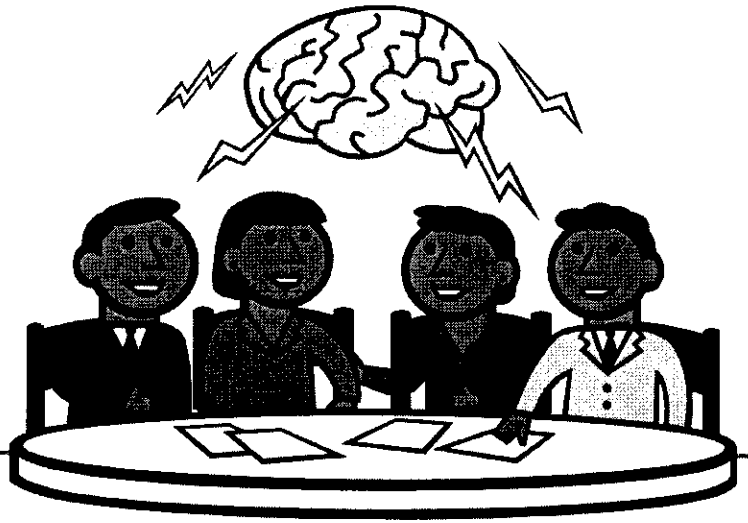


See Appendix Three

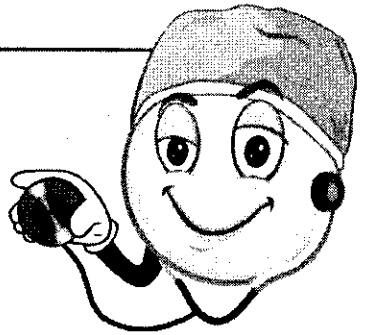


Formative assessment: debrief

What distinguishes formative assessment from good instruction is the addition of specific individual feedback and comments targeted at ways of improving the student's performance or understanding and scaffolding next steps.



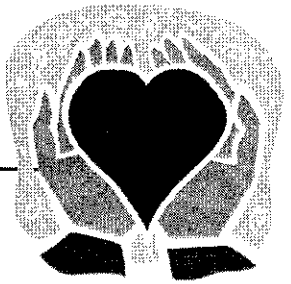
1. Diagnostic:



- Gather information about prior skills and knowledge

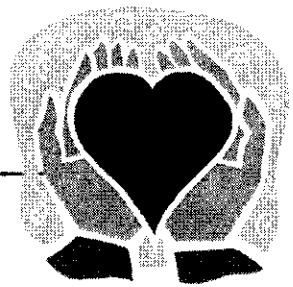
Purpose:

- Pinpoint abilities, interests, and knowledge
- Modify lessons and learning with this in mind
- Motivate students; they understand what they are going to learn and see relevance



So, what does this mean in the library

- Design the learning experience considering
  - Reading level -
  - Interests
  - Kind of learners
    - Learning styles, experience with research
- Making instructional decisions
  - Tasks - relevance
  - Resources
  - Kind of instruction
    - Visual – video clips, YouTube, interactive websites
    - Kinesthetic
    - Linguistic
- Level of instruction
    - Basic, advanced, combination



New Ontario Ministry of Education document – draft only (to be released Spring/Summer 2010)

http://www.ocup.org/resources/documents/EDU_GS_binder_010708_BM

Reflection

1. How would you approach the teacher?

2. What questions would you ask now?

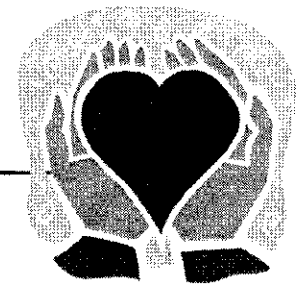
3. Think about something you are doing with a teacher this week? Is there an idea you might try?

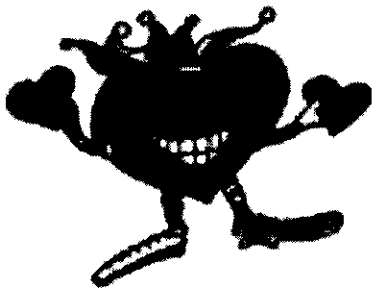
3 Types of Assessment

Diagnostic

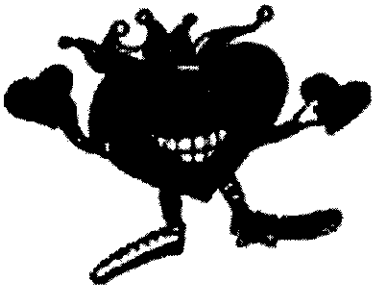
Formative

Summative





meets

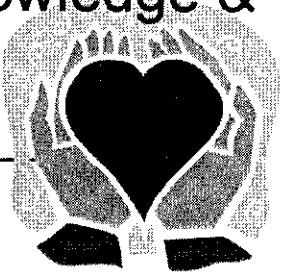


- Library is the heart of the school
  - Learning commons
  - Connections with all staff
  - Influence learning

- Assessment is the heart of learning
  - Authentic and challenging task to engage learners
  - Clear evaluation
  - Support and feedback throughout process
  - Students' prior knowledge & skills

Student Learning &

Student Success



A Participatory Action Research Approach to Developing Understanding of The Learning Commons in an Elementary School as Explored by Students

Diana Maliszewski
Teacher-librarian

Agnes Macphail P.S.
Toronto, Ontario

In 2009, I was honored to become a part of the rewrite team for "Together For Learning", a document produced under the auspices of the Ontario School Library Association and with the support of the Literacy and Numeracy Secretariat of the Ministry of Education for the province of Ontario. As described by Thomas, Maliszewski and Henley (2009), the vision document "establishes the key concept of the entire school as a learning commons, with everyone having a role to play and everyone being a learner." (Thomas, Maliszewski, & Henley, 2009, p.25). As a teacher-librarian from a K-8 school, it was part of my job on the team to ensure that the elementary perspective in the document was evident. The five months I spent working with the talented and hard-working team of school library professionals to hone this document taught me a lot and also revealed where I needed more professional development. I wanted to have a solid understanding of the concept of the learning commons. I wanted to see how a learning commons philosophy would operate with younger members of an educational community. I also wanted to be true to the philosophy of "everyone a learner" and involve my students as equal participants in this learning journey. Examining the concept of a learning commons in conjunction with my students mirrored the purpose of participatory action research, which is:

> "to improve the quality of people's organizations, communities and family lives (Stringer, 1999). Although espousing many of the ideas of teacher and school-based practical action research, it differs by incorporating an emancipatory aim of improving and empowering individuals and organizations in educational (and other) settings. Applied to education, the focus is on improving and empowering individuals in schools, systems of education, and school communities." (Creswell, 2008, p.603)

I was required, in the 2009-2010 year, to see every class in the school for one thirty-minute period per week to provide a "prep" for the classroom teacher. This class did not require any subject-related evaluation and was up to me to decide the "library-related" content. This was the first time the intermediate students had a regular library period in their schedule since I began teaching at the school in 2004. I wanted to guarantee that this was not "wasted time" and so I devised my unit plan for first term around a big inquiry question: What is a learning commons and how would the idea of a learning commons impact our school? This question was for me and for the students to answer collaboratively.

My means of collecting data took several forms. I videotaped a couple of the lessons I conducted with the grade seven and eight students. I also videotaped several impromptu interviews and conversations with the students, as well as filmed "students in action" as they had discussions with each other and researched the idea. The quality of the audio recordings was not optimal because of the background noise. Students were required at the end of the unit to share their findings in whatever way they felt most comfortable, echoing the belief held in a learning commons that individuals can showcase their learning in multiple ways, all legitimate. These student products became concrete evidence for me of their understanding. Finally, I had a pair of "critical friends" who came to visit my students and me. They provided a different view of what they observed and gave helpful advice on how to handle misunderstandings and possible next steps to take.

Launching the Unit

My introductory lesson (see Appendix A) was repeated three times, for the three intermediate classes. This was helpful to me because I could see when my explanations fell short and needed more structure. I modified my original lesson plan so that the entire class sat in a circle and we threw Koosh balls around to brainstorm our ideas surrounding the words "learning" and "commons". After the first class, I discovered that this approach, although it tapped into the students' background knowledge at the time, led them to misunderstandings about what a learning commons could be. When we used the "free association" exercise, many students in the first group became fixated on the idea of "common" being "the same"; it took a lot of conversations to dissuade some of the students that it was a one-size-fits-all prescription to teaching and learning and some never overcame their original imagining. My subsequent classes still used the Koosh ball activity, but after pondering the words in isolation, I combined them and gave my own suggestion – the Gryffindor Common Room in *Harry Potter* novels. This helped the other students widen their ideas.

Student Approaches to Research

As I predicted, after the initial questions surrounding the task were answered (including the traditional "are we being marked on this?"), the majority of the students raced to our mini-lab of computers in the library to have search engines (mainly Google) find articles for them.

"Tennyson", a grade seven boy, chose to work alone while he searched because "it's much more easier and you don't have so many obstacles". He made some astute observations when I talked with him about his findings. The concept of a learning commons, according to him, was only for university students. He explained that, "It's physically in the library and combines two types of studies, individual and group studies. They provide you with study space. It's different [than our current set-up at school] 'cause it's for higher grades, like universities or high schools". He elaborated, "You're not really going through a lot of text, which would help you to get a job ... you need to be more self-dependent ... in elementary school, there are people to guide you." I then gave him a probing question, "What if this wasn't just for university students? Could this approach be used for high school or elementary schools?"

"Donna", a grade eight girl who regularly set high academic goals for herself, was convinced that there was a "right answer" out there. She suspected that I already had a definition in

mind and insisted on interviewing me as part of her research efforts. In an interesting twist, she chose to interview other teachers in the school to determine what they knew about a learning commons. Her slideshow quoted the teachers and aptly demonstrated the uncertainty they felt surrounding the term. (See Appendix B.) Even the writing group and I were struggling with a working definition of a learning commons that would be short, make sense, and show how teacher-librarians could fit into the equation.

Several students took a very visual approach to trying to answer the question. These students conducted Google image searches and theorized that a learning commons was a special type of room in a school. "Rocky" said, "I got a pretty scientific answer ... it sounds pretty good and I think it is, and it makes sense – where we talked about it, over there [referring to the community circle], it's kind of mostly what it says".

Some all-female groups chose to discuss their ideas among themselves extensively before doing any readings. They took notes of their own discussions and wrote things such as "learning common things in different ways".

A few students decided to take "the old-fashioned" route and scoured the library bookshelves for any books or encyclopedias on the topic. They started to become frustrated at their lack of success, until I explained that this was a relatively new concept to the field of education and that this was a very specific topic that usually wasn't directed to the general public or to younger readers.

This highlighted for me one of the difficulties with jointly understanding and possibly applying the learning commons concept. Most reading materials were aimed at educators already familiar with technology and focused on application in universities. I purchased *The New Learning Commons: Where Learners Win!* by Loertscher, Koechlin, and Zwaan to help my students who were struggling to find age-appropriate material on the topic. Donna commented that the book "was a bit long and boring" and even I found it overwhelming in some portions.

My ESL students found this assignment particularly challenging. They dutifully copied the text of the articles they found into translators and became even more confused. Eventually, I just sat down with a small group and described what I had discovered about the concept and answered their questions. I worried that this framed me too much as the "expert" instead of as a fellow learner but I accepted this tactic as a necessary step in this experiment.

Findings of the Community on Learning Commons

The final presentations were of mixed quality. The students were told right from the beginning that they could choose whatever method they wished to share their findings and that this would not impact any of their letter grades but would act as supplementary information for the learning skills portion of their report card. I theorize that, because of this, and partly because they did not have a say in the topic of study (learning commons), several groups made half-hearted attempts at sharing their ideas. Many chose to stand up and tell the class orally what they thought a learning commons was. Others submitted their point-form notes as evidence. Donna created a PowerPoint presentation to show the class. (See Appendix B.)

Some students did not feel comfortable sharing their knowledge in front of the class and asked to talk in private with the teacher. On October 9, 2009, Peggy Thomas, president of the Ontario Library Association and Carol Koechlin, author of *The New Learning Commons: Where Learners Win,* came to listen to the last set of presentations. One of the groups took control of the class and stopped the presentations so that they could play "Doo Wacka Doo Wacka Doo" with our guests. The students felt it was important for our visitors to get to know them using this very kinesthetic name game and they wanted to have some fun.

Carol and Peggy chatted individually with some of the shyer students to probe their understanding. Unfortunately, I did not get to videotape these encounters, but they were rich in the exchange of knowledge and ideas.

Some of the students had difficulties articulating a definition.

Some misunderstandings about the idea of the learning commons still emerged at the end of the unit. "Katie" wrote "I think learning commons are a large room where you can study or learn quietly. Like a library, but mostly are made for universities. ... I don't think we need a learning commons because we already have a library and most of us study in our own homes. Our library is big enough for most people who study. Not most people study in school." "Jennifer" and her group wrote "a teacher teaches a class the same thing therefore everybody is learning in common".

Those who had more than a superficial interaction with adults in addition to their peers and readings seemed to have a firmer or more complex grasp of what a learning commons could be.

Learning Common

- Learn in any time, any where and anyone.
- Learning is not only in school. We can learn in home, library, museum ..... any where.
- Learning is not only from books or text, we can also learn from TV, radio, internet and circumstance, too.
- Learn from each other, like classmates, teachers, family, and friends.
- Learning common is not like some serious school, only study and test, study and test. We can learn from many fun activity, just like our school
- Learn from failure
- Every one can be a learner, student, teacher.....

Cherie Liu

Q: What is "Learning Common"?

A: ••••··Write··by··Crystal··W·····••

a. ● Learn from each other and Share our ideas and opinions.

b. ● Anybody could learn at anytime anywhere.

c. ● Learning common means we don't always wait for teachers orders and learn we can learn at any moment and have fun in learning

d. ● while we are learning. we can also encourage the others to enjoy learning or we can learning with our friends together.

e.

f. ● Talk more with our teacher, and ask more questions. this will help us a lot. Otherwise we have our own opinion or a brand new way to resolve the same Problem. we can tell our teacher. And He/she can use our way or point out some mistakes.

g. ● Love learning and keep learning whoever you are, a child or an oldster.

There was a mixed reaction to the second portion of our inquiry question on the possibilities of implementing a learning commons at our school. One student made a pro/con list outlining the issues to consider.

"Amber" wrote:

> "Advantages
> - could improve learning skills
> - have extra time to work on project, homework or research
> - anyone can use
> - everything found in one place
> - gives the opportunity to improve
> - suggestion / feedback
>
> Disadvantages
> - students could abuse it
> - time disadvantage
> - limited amount of space and resources
> - requires careful cooperation"

What I discovered was that I did not have enough time scheduled to examine all of the findings, create a group definition, clarify and correct the various misunderstandings and decide together on the next steps. Some students did not use their time productively and began to lose interest in serious investigation.

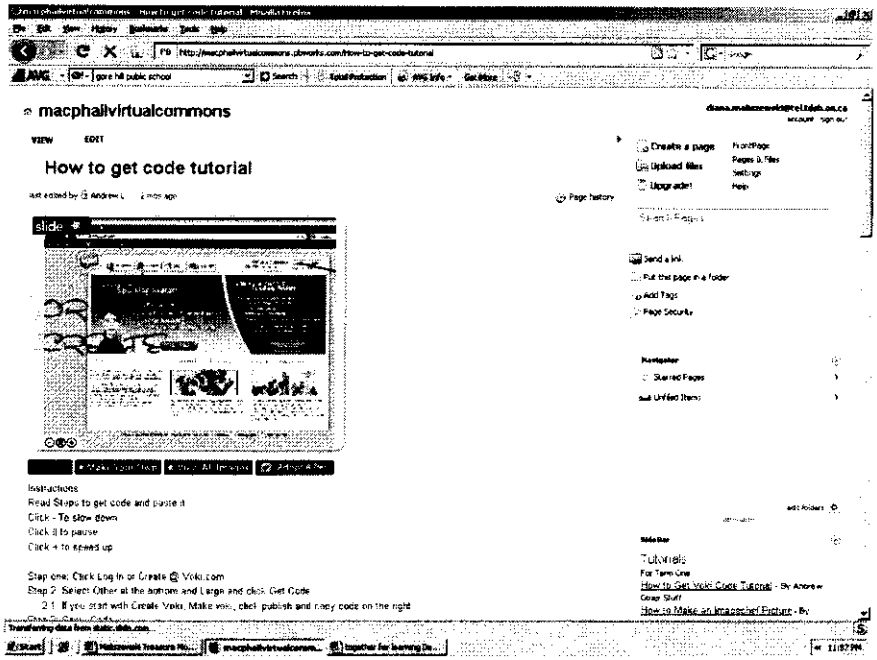
I decided that my next step, despite the less-than-solid conceptualization by the group, would be to define it by living it. After reading Will Richardson's book (2006), I created a wiki for us, titled "Macphail Virtual Commons", for use inside and outside of school for various purposes. Our wiki can be found at:

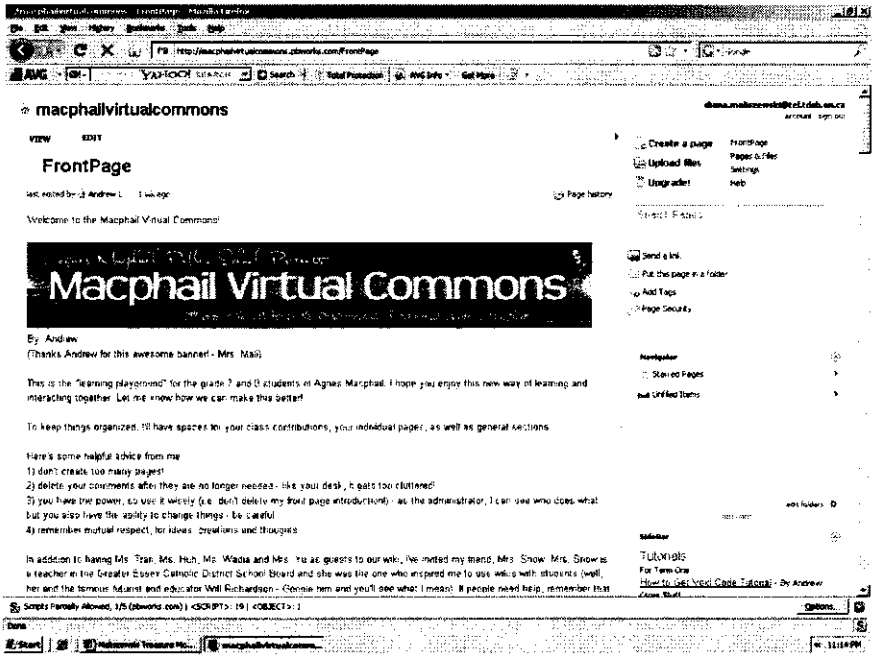
> http://macphailvirtualcommons.pbworks.com

Establishing a Wiki and Starting Steps to a True Learning Commons

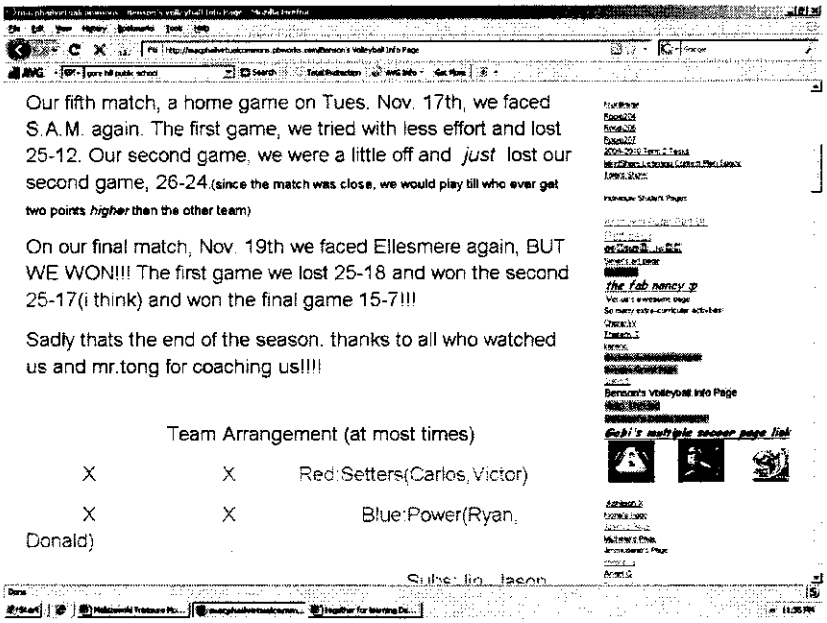
It was in the creation of the wiki that the students finally began to understand what we hoped to accomplish by creating a learning commons.

We read an article about wikis and summarized the key points. Immediately upon launching the wiki, students began to explore what it could do. Individual student pages began to pop up on a variety of subjects near and dear to the students' hearts. Our first term media assignment was to create an interactive avatar that represented you symbolically or physically and to describe to the fellow wiki users "what makes you, you". Some students had difficulty posting their avatars to the wiki and other students became experts and offered to help.





The wiki did much more to develop the students' understanding of the potential of a learning commons than the initial research inquiry project. They discovered that everyone was a learner, instructors and students alike. They discovered that their own interests fueled the learning commons and learning happened during the instructional day and beyond it, at school and at home. Some of the personal pages the students created showed devotion and dedication.



Our fifth match, a home game on Tues. Nov. 17th, we faced S.A.M. again. The first game, we tried with less effort and lost 25-12. Our second game, we were a little off and *just* lost our second game, 26-24.(since the match was close, we would play till who ever get two points *higher* then the other team)

On our final match, Nov. 19th we faced Ellesmere again, BUT WE WON!!! The first game we lost 25-18 and won the second 25-17(i think) and won the final game 15-7!!!

Sadly thats the end of the season. thanks to all who watched us and mr.tong for coaching us!!!!

Team Arrangement (at most times)

X X Red:Setters(Carlos, Victor)

X X Blue:Power(Ryan, Donald)

Subs: Jia, Jason

They enjoyed learning from each other and sharing their discoveries. Tennyson commented, "We're just getting better and better, one day we're all new to this, next, we're all making our own pages and posting things 24/7, this just gets better and better right." The students appreciated the easy access to teachers and fellow students at all hours of the day or night and there were many messages for clarification or feedback, such as this typical one from "Wanda" regarding a point-of-view pre-assessment task in third term, given using www.surveymonkey.com: "Ms Mali, I don't get the last question in the survey. What is it asking??? And btw, when is it due and is it fir marks??"

Technology played a key role in creating both physical and virtual spaces in which to work. Partnerships were created with many different and unexpected people. For instance, I invited Margaret Snow, a teacher-librarian at Gore Hill Public School in Leamington, Ontario, to be a member of our wiki. I met Margaret while running Library Camp OTF for the Ontario Teachers Federation on behalf of the Ontario School Library Association. Margaret showed the camp attendees her wiki and how she used it with her intermediate students. She was able to help me with technical issues surrounding Voki (the interactive avatar software) and Pbworks (the wiki hosting site). In one comment she left on the wiki for everyone, she mentioned that her students were using Image Chef to create their own banners. Within days, many of my students began creating their own Image Chef banners. They weren't required to for a project; they were simply interested in learning something new and took it upon themselves to learn how. Then, they taught the rest of us how to do it.

The wiki took us in even more daring, exciting avenues. The students decided how to evaluate the term two wiki-related media and oral communication assignments and designed the marking scheme with the teacher. Volunteers chose the oral texts to use for analysis. When a small group of students and I entered the Microsoft-Mindshare 21st Century Learning contest, part of our planning was on the wiki. The end product was a YouTube video that actually touches on many of the concepts behind a learning commons and can be seen at:

http://www.youtube.com/watch?v=rwG3Oo5RShc

So What Is it Really?

Defining a learning commons is not a simple task. It is a pedagogical and philosophical construct. It encompasses location, technology, democracy and group dynamics. What follows are two of the main definitions I came to embrace.

> "the various learners recognize that the Learning Commons is a client-side organization where they have some say in what goes on and they are contributing as well as receiving as a user. ... they are engaged as they inquire, use, contribute, work and create." (Loertscher, Koechlin, and Zwaan, p13

> "The Learning Commons is a flexible, responsive approach to focusing a school on learning collaboratively. It expands the learning experience into the real and virtual spaces inside and beyond the walls of the school. This vibrant, whole-school approach affords new and innovative opportunities for collaboration among teachers, teacher-librarians and students, which reflect the rapid pedagogical and technological changes taking place in learning now and in the future. The school library provides the natural dynamics for working together to facilitate this change to a Learning Commons." (Together for Learning, 2010, p.4)

Like my students, I was learning about what it meant to be in a learning commons along with them. I believe that the exploratory inquiry learning research at the beginning of the school year was a good start but I needed to provide more reason and purpose for the investigation. Their initial background knowledge was insufficient for them to launch into an inquiry project – if I was to do this unit again with a different set of students, I would give them the collaborative learning experience first, and then have them research the Learning Commons with some "people resources" identified beforehand for them to access. I have already addressed the first portion of this recommendation by creating a blog for the grade 5 & 6 students to use. (The private blog can be found at macphailmavericks.blogspot.com) Another option, which we actually used in the second and third term for other assignments, would be to design the research assignment as a collaborative learning experience in a wiki so the students could feel it as they learn it. Using the wiki provided the engagement and motivation, as well as paradoxically both the freedom and structure, for the students to experience what it meant to be in a learning commons. Our journey still continues.

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Part III: The Journey Continues

The Big Think
Reflecting, Reacting, and Realizing Improved Learning

Carol Koechlin
Sandi Zwaan
Education Consultants
Ontario, Canada

The game has ended, and the scores have been tallied. What were the results? Are we satisfied? Would we have liked something better? What do the winning teams do when they aren't satisfied with their performances? They pick themselves up, rewind the tapes, review, and observe. The coaches and the players analyze their successes and look for the possible causes of their less than stellar plays. Even the winning teams review their play and begin to plan the strategy for the next game, building on the positives and attacking the weaknesses with renewed energy and commitment.

If we as classroom teachers, teacher librarians, and learners don't take a similar action, if we continue using the same strategies and processes we have always used then we can expect only a repetition of the same outcomes. So how do we accomplish the 'post game' review? We don't have the luxury of 'days off between games'. In education there is a need for a continual stream of assessment of the learning; not just the knowledge and understanding of content, but also the effectiveness of the strategies and processes used to achieve that learning. What we need is a streamlined, easy to apply, approach that both teachers and learners can use effectively and efficiently as our units draw to a close and we begin to plan for the next activity. To get better as learners we must apply ongoing metacognative assessment strategies that appraise what we know and how we learned it and inspire us to take action.

Many of our readers are familiar with The Think Models[1] we created a few years ago to replace the common low-level bird units that plagued school libraries. The models offer a better way to 'play the game' because they provide stages of high think inquiry, information processing, and opportunity to build on the knowledge and expertise of others. During the process learners take on more and more responsibility for their own learning as they utilize the best resources, technologies and strategies to their advantage. The classroom teacher and teacher librarian's role is to ignite interest, guide and coach learners, and provide ongoing metacognative assessment throughout a learning experience thus building essential learning to learn skills. To ensure that learners are aware of the content and skills they have gained in the unit each of the Think Models also wraps up the experience with a Big Think so everyone is cognisant of what they have learned and how they learned it.

[1] Loertscher, David, Koechlin, Carol and Zwaan, Sandi. ***Beyond Bird Units.*** Salt Lake City UT: Hi Willow Research and Publishing, 2007

Over the last couple of years as we have coached teacher librarians and teachers though these models and the design of High Think inquiry we observed a need to expand our work on the Big Think culmination activity. This deliberate metacognative experience has even more value than we originally thought. It has the potential to change everything!

Why do we give students research projects? What do the students gain? How do we know they have benefited? How do students know if they have gained anything? What do teachers learn from these assignments? Do we have evidence that our inquiry assignments contribute to school improvement? Are we keeping pace with the needs of learning today? Like athletic coaches, we want our team to get better and better every "game" we play in our drive toward excellence.

When we ask these questions in workshops and with individual students we are disappointed with the answers we receive, consequently we researched, rethought and expanded our concept of ending formal units of study and research assignments in a Big Think. The outcome is our book called The Big Think[2] which develops 9 metagcognative strategies that can be used with any ability and grade level and any subject to ensure that everyone, students and teachers, not only gain from the main experience but also are aware of what they now know, how they learned it, and how they can improve the learning. Like athletic coaches, we want our team to get better and better every "game" we play in our drive toward excellence.

We propose an idea so simple yet so rewarding it really is worth the investment. By engaging in the Big Think we as teacher librarians can triple the benefits of our efforts. With these three important 'Returns' on our investment we can impact teaching and learning on a school wide basis.

When we put our heads together with classroom teachers, we want one plus one to equal three! Our focus as we watch the rerun of the learning experience as coaches and learners together will be on three main things that happened during our game together: analysis of learning how to learn, how we taught them to learn with our team players, and how our game strategy affects school improvement.

Return #1 Learning to Learn with Our Team Players

Instead of just setting aside individual learnings at the traditional end of the unit and moving on to the next topic, the Big Think enables learners to build on each other's expertise and pool their collective knowledge to do some deep thinking and working with this body of new ideas and information. This collaborative knowledge building does not mean that ideas are distilled or meshed together to produce a consensus product. Instead it means that individual knowledge is considered, analyzed, and worked by groups to build a new richer understanding that can only occur once they can see the big picture. When learners are provided this opportunity, content knowledge is broadened and deepened, fresh perspective is gained, and lasting understandings take hold.

Collaborative knowledge building is a desired outcome of working, playing, and learning today but it doesn't just happen. We as educators need to develop the knowledge and skills that are required to work in participatory and collaborative environments. We must then design opportunity for learners to hone the skills of collective cognition and to work effectively in these environments.

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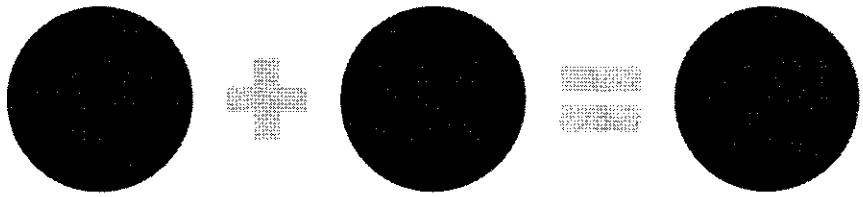
[2] Loertscher, David, Koechlin, Carol and Zwaan, Sandi. ***The Big Think: 9 Metacognative Strategies That Make the Unit End Just the Beginning of Learning.*** Salt Lake City UT: Hi Willow Research and Publishing, 2009.

Since the Big Think strategies give learners practice with these skills consequently they become better and better at collaborative knowledge building and learning to learn.

As well as a solid return on content acquired, the multi-layered Big Think is designed to help learners reflect on the processes used during the research process or unit of study and consider what worked, what didn't and why. This information is again pooled and examined for patterns and inconsistencies. Together strategies are developed to tackle problems and build on successes. Learners develop a new found efficacy and a positive mindset. They begin to see the importance of personal effort. They expect to get better because they have a plan.

The Big Think activity consists of two elements that add up to increased knowledge building and real growth.



Sample Questions During a Content Big Think Activity

- ***So What?***
  - What are the important ideas we explored?
  - What does this tell us about the topic?
  - What does this mean?
  - What new understandings emerge?
- ***What Next?***
  - What new questions do we have?
  - How can we use what we know?
  - What else do we want to explore?

Sample Questions During a Process Big Think Activity (21st century skills)

- ***So What?***
  - What strategies did we use to learn?
  - How did these strategies work for us?
  - Which worked well or didn't work well and for whom?
- ***What Next?***
  - How can we use what we learned to do better next time?
  - What will we do next?
  - Where else can we apply what we now know and can do?

Return #2 Teaching for Learning: We Reflect as Coaches

Similarly, the adult teacher coaches need to conduct a Big Think at the end of the unit so they know how to tweak their game plan for next time. Everyone involved in the collaborative venture, classroom teachers, teacher librarian, teacher technologists, and other specialists need to put their heads together and debrief the effectiveness of the learning experience. They need to examine all the evidence available; planning notes, assessment data, student testimonials, reflections, visual documentation, and student products. They need to ask revealing and probing questions, e.g.,

Sample Questions During a Coach's Content and Process Big Think Activity

So What?

- What did students learn? How did they learn it? Why is this important?
- What went well? What didn't work? Why?
- Were all learners engaged?
- How well did differentiation strategies work?
- Does the assessment data give us a clear picture of student learning?
- Did the timing and chunking of the unit work?
- What learning environment problems did we encounter e.g. space, technologies, resources.
- How was understanding enhanced by the Big think?
- What process problems and successes were uncovered by the learners during their Big Think?

What Next?

- What new questions do we have?
- How can we use what we now know to do better next time?
- What actions should we take?

Return #3 School Improvement

Finally is the opportunity to triple your investment. Reflective, informed learning and teaching equals continuous growth, the foundation of sustained school improvement.

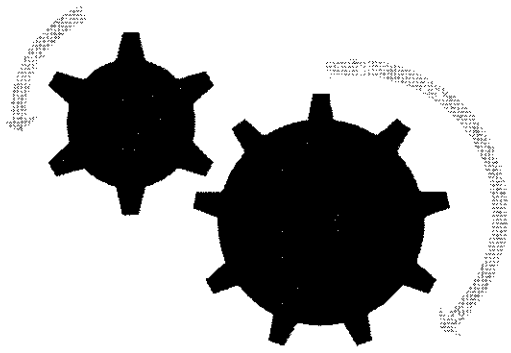
Teacher librarians need to capture data from the Big Think activities and include this information in school-wide achievement data collection. It is an effective way to document value added by school library interventions. When we can demonstrate that two heads are better than one, when classroom teachers invest in working with teacher librarians, the rewards are irresistible.

Too often learners are left out of the assessment piece. However when students feel invested, they just might make greater strides toward excellence. When teachers are empowered with a process for improving their teaching and when they are supported and encouraged to adopt a strategic approach to teaching with learning in mind then confidence and passion are restored. The Big Think creates this participatory culture where everyone is moving along toward a winning season; all are focused and confident that their goals are achievable.

We are at a turning point in education. Finances are limited, timetables and curriculums are overstuffed and students and teachers are under pressure to perform. We have to achieve more in the same time with fewer resources. We must make every minute count. It really is the time to work smarter, to focus our efforts on strategies that ensure success and progress.

The 21st Century Skills movement has put further demands on education that must be addressed if we are to keep pace with global forces driving the need for a more elastic curriculum that will truly prepare learners for their world. In our enthusiasm to prepare learners with evolving skills and literacies and equip them for learning in a shifting landscape, we must be careful not to short-change content learning. It is not a matter of either or, but a thoughtful approach to design of learning that carefully matches needed skills with desired content targets. In a recent article *21st Century Skills: The Challenges Ahead* in Education Leadership, authors Andrew Rotherham and Daniel Willingham state that, "the issue is how to meet the challenges of delivering content and skills in a rich way that genuinely improves outcomes for students."[3] The Think Models are the perfect teaching tools to assist educators in skilfully aligning 21st Century Skills with desired content in any discipline. The culminating Big Think is the final review or assessment piece that deepens and broadens understanding and develops collective knowledge as well as informing teachers and learners just where they are in terms of mastering skills and content. Teacher Librarians working with classroom teachers and other specialists can lead the way in ensuring that both content and skills are valued in a 21st Century curriculum. The Big Think is consequently a vehicle for and a thermometer of whole school improvement.

Process drives content and cannot be separated if real, long lasting, learning is to occur.



So just what is a Big Think?

We propose that at the end of every learning experience educators invest a few minutes in a metacognative exercise that will make learners more mindful of what they have gained in the way of knowledge, skills, and learning strategies. For the purpose of this article we will concentrate on the types of learning activities teacher librarians most often are engaged in with learners; research and inquiry lessons, and units based on content learning, as well as literature based studies.

At the end of a typical unit learners usually share their product or present their findings, get a grade, and move on to the next unit of study. Just when our students have enough knowledge about a topic to actually discuss it with some expertise we slam the door shut on that topic and hope the

[3] Rotherham, A.J. and Willingham, D. ***21st Century Skills: The Challenges Ahead***. VA: Educational Leadership ASCD, September 2009.

individual learning will be retained. Occasionally we see evidence of individual self reflection but rarely collective cognition and synthesis of what we now know as a group.

Metacognition is basically the ability to reflect on an experience and reason about what worked and what didn't and why, and then strategize for improvement. Thus metacognition is critical to learning how to learn. Without an opportunity to think about learning, students rarely unpack the importance of new knowledge gained, or make connections to bigger ideas and concepts. They certainly will not grow as learners without opportunity to analyze their strengths and weaknesses and set goals for improvement.

When a unit of study is completed learners are then really ready to play the game of learning. Each individual has something special to bring to the field. We design a Big Think experience to capitalize on learning from the main event and ask learners do some deep thinking about the content in order to build personal and collective knowledge. We know from brain based research that long term memory hinges on making connections and processing information in many different ways. The Big Think strategies apply many principles of brain based learning and thus contribute to real long lasting learning.

Another foundational goal of the Big Think is for learners to improve skills, develop habits of mind, and responsibilities conducive to learning how to learn. Carol Dweck refers to this needed ability as a growth mindset, in her book the, *New Psychology of Success*. Dweck tells us that given a Growth Mindset, necessary resources, opportunity and the transformative power of effort, we can in fact reach our full potential.[4] We can study and apply the mindset psychology in our efforts to improve outcomes for learners and help them to become more self reliant. With greater student and staff involvement in assessment we can demonstrate the value of effort. When we work as teams we can provide opportunities to make the learning experiences in our schools exemplary. We can assist in establishing the habit of personal and professional growth, reflective practise, personal responsibility, and confidence.

During the Big Think it is critical for teachers to still be involved and provide needed guidance and feedback if learners are to get better. The nine metacognative strategies provide learners practice with a variety of learning how to learn skills, but as Rotherham and Willingham also point out in their article, "Experience means only that you use a skill; practice means that you try to improve by noticing what you are doing wrong and formulating strategies to do better. Practice also requires feedback, usually from someone more skilled than you are."[5] Metacognition and useful feedback becomes part of the culture or game plan of learning in our schools and everyone, teachers and students, get better and better.

We have developed these nine basic strategies to provide the best potential for engagement and high think. The Big Think activities do not need to be time consuming. They can take anywhere from 5 minutes to a class period or longer in the event that more involved What Next activities are sparked. The point is that the Big Think needs to be designed as part of the lesson or unit because it just too important to neglect. The following chart provides an overview of each strategy.

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[4] Dweck Carol S. **Mindset: the New Psychology of Success.** NY: Ballantine Books 2006.

[5] Rotherham, A.J. and Willingham, D. ***21st Century Skills: The Challenges Ahead***. VA: Educational Leadership ASCD, September 2009.

The Big Think Changes Everything

Nine Metacognative Strategies that Make the Unit End Just the Beginning of Learning

Strategy Teachers and learners think about content and process	What? The information to knowledge journey	Why? Knowledge building and real growth	How? Make connections as a group between what I know and what we discovered. Develop what we now know.
Active Discussion	Small and large group face to face and/or virtual discussion ignited by a question or scenario	To develop, clarify, interpret, empathize, defend, understand	Informal discussion, formal panel, debate, press conference, blog, wiki, interactive video conferencing etc.
Create New Questions	Collaborative reflection, analysis, discovery, exploration of opinions and points of view directed by student developed questions	To create a culture of inquiry, to ensure personal relevance, perspective, purpose and direction for thinking, springboards for further actions, research, critical analysis	Use question building assists; question storming, Bloom's Taxonomy, De Bono's Thinking Hats, question matrix etc.
Higher Order Thinking	Collaborative critical and creative thinking	To raise level of understanding, solve, infer, predict, evaluate, argue, innovate	Stretching, comparing, speculating, predicting, discovering effect and impact, analyzing, synthesizing, evaluating
Interact with an Expert	Confirm, amend, or enhance understandings, explore ideas and interpretations	To exchange ideas, glean new knowledge, gain perspective, add relevance, make real world connections	Interview, consultation, face to face and/or by videoconference, blog, Twitter, Skype, email. Real or virtual field trip, tour
New Problem or Challenge	Stimulate creative collaboration by presenting a new problem or challenge that draws on collective knowledge and expertise	Transfer and apply knowledge, solve problems, develop fluency and flexibility, simulate real life situations, make learning relevant.	Introduce an element shift or what if scenario, problems possibilities jigsaw, concept jigsaw, teach or coach,

Thoughtful Writing	Construct and articulate deep understanding through a process of collaborative writing	Consider alternate ideas and perspectives, construct meaning, write collaboratively, stimulate curiosity and interdependent thinking	Concept writing, quick write, chart, letter, wish list, zine, wikis and other Web2.0 tools
Construct Visuals	Active building of knowledge through visual representations	To clarify concepts, build knowledge, convey meaning on sight, accommodate visual learners, enable those with language or learning deficiencies	Charts, graphs, flow charts, timelines, webs, illustrations, cartoons, comic strips, concept mapping software and other technology applications
ReCreate	Transform information and ideas to a new medium	To present information and ideas via a new medium, build understanding of concepts and events, tap into emotional intelligence, develop empathy	Create a skit, dramatic representation, collage, web, video, game, podcast and other creative technology applications
Sandbox	Play with ideas and information to create or invent something new	Brain based learning, utilizing all senses, stimulates curiosity, wonder and discovery, ownership and freedom of choice, ignites renewed passion for learning	Creative technology applications, music, drama, visual arts, video, tangible manipulatives

Loertscher, David, Koechlin, Carol and Zwaan, Sandi. ***The Big Think: 9 Metacognative Strategies That Make the Unit End Just the Beginning of Learning.*** Salt Lake City UT: Hi Willow Research and Publishing, 2009.

Back to the game plan

We call on teacher librarians to coach their staff and students on the many benefits of Big Think strategies. At the end of a unit keep the thinking flowing and strive for deeper understandings, facilitate transformations of learning and spark new student innovations and creations. Invest in the design of Big Think activities to help learners become more mindful of what they are learning, how they are learning it, and why; help teachers become reflective practitioners; and contribute to whole school improvement and excellence.

This is the winning formula!

- Collaborate with classroom teachers and other specialists to design and teach research and inquiry units using the Think Models. Culminate with a Big Think of content and processes to further elevate library projects so that the product or presentation is no longer the end; it is just the beginning of real learning!
- Conduct a Big Think with teaching partners.
- Share evidence with the entire school community.
- **Reflect, react and realize improved learning**

Selected Resources

Dweck Carol S. **Mindset: the New Psychology of Success.** NY: Ballantine Books 2006.

Jensen, Eric. ***Teaching with the Brain in Mind 2nd Edition.*** VA: ASCD 2005.

Koechlin, Carol and Zwaan, Sandi. ***Building Info Smarts: How to work with all kinds of information and make it your own.*** Toronto: Pembroke, 2008.

Koechlin, Carol and Zwaan, Sandi. **Q *Tasks: How to Empower Students to Ask Questions and Care About Answers.*** Toronto: Pembroke, 2006.

Loertscher, David, Koechlin, Carol and Zwaan, Sandi. ***The Big Think: 9 Metacognative Strategies That Make the Unit End Just the Beginning of Learning.*** Salt Lake City UT: Hi Willow Research and Publishing, 2009.

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Rotherham, A.J. and Willingham, D. ***21st Century Skills: The Challenges Ahead***. VA: Educational Leadership ASCD, September 2009.

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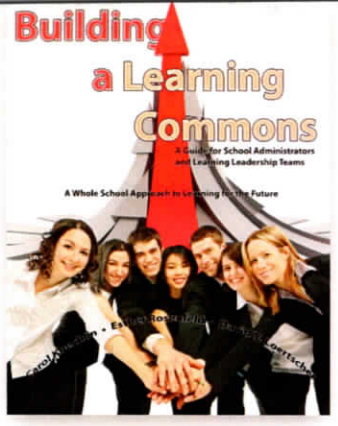
The New Learning Commons Where Learners Win! Reinventing School Libraries and Computer Labs

David V. Loertscher, Carol Koechlin and Sandi Zwaan; ISBN: 978-1-933170-40-4; Hi Willow Research and Publsihing; 2008; $25.00

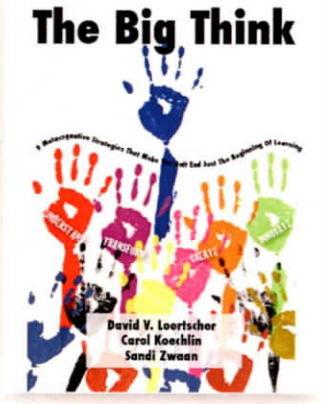
Loertscher, Koechlin, and Zwaan team up in this book to rethink everything about the function and role of school libraries and computer labs. It is often a case of 180 degree reconsideration. What does this mean? The profession has been on a command and control model: If we build it, they will come. We build a website and expect students and teachers to use it on our terms. They Google, instead. We expect teachers to appreciate the collections we build. They want classroom collections. We open our doors during the school day. Our patrons want 24/7-365 service.



Building a Learning Commons

Carol Koechlin, Esther Rosenfeld, and David V. Leortscher; ISBN: 978-1-933170-59-6; Hi Willow Research and Publishing; 2010; $30.00

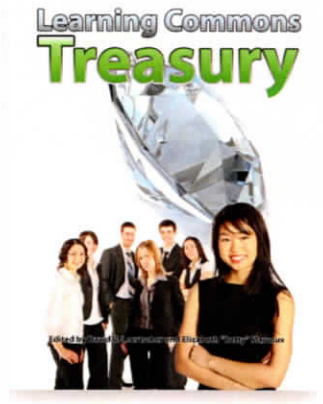
As a companion to The New School Learning Commons Where Learners Win, this book is a planning guide for administrators and those interested in establishing a Learning Commons that reinvents the role of the school library and computer labs in the school. Chock full of checklists, planning forms, an organizational suggestions, this guide is a handy tool. It begins with a brief explanation of what a Learning Commons is and its role in total school improvement and then step by step goes through the aspects of program, physical facilities, changing technologies and ends with a variety of assessment tools to guage progress.



The Big Think: 9 Metacognative Stratagies That Make the End Just the Beginning of Learning

David V. Loertscher, Carol Koechlin, and Sandi Zwaan; Hi Willow Research and Publishing; 2009; ISBN 978-1-933170-45-9

The typical research assignment might consist of a selection of a topic and the interception of information resulting in a product of some kind that is graded. The end. Next topic, please. However, football coaches approach things quite differently. Yes there is the daily practice culminating in the game. But they videotape the game for a specific reason. Monday, everyone analyzes the game. Put your ego at the door. Watch. Analyze. Synthesize. What when on? How did I do; how did we do; what can we do to get better?



ISBN 978-1-933170-61-9
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Learning Commons Treasury

Carol Koechlin, Esther Rosenfeld, and David V. Leortscher; ISBN: 978-1-61751-000-7; Hi Willow Research and Publishing; 2010; $30.00

This compendium of articles from Teacher Librarian completes a trio of guides to leadership teams interested in transforming the school library and computer lab into a Learning Commons. The first book, The New School Learning Common Where Learners Win set the theoretical foundation for the Learning Commons. The second book: Building a Learning Commons provides administrators and learning leadership teams with the planning tools needed to establish a Commons. In this third publication, the editors have gathered together 25 articles they have solicited about the Learning Commons idea over the past several years and published in Teacher Librarian