WE BOOST TEACHING & LEARNING

Inquiry
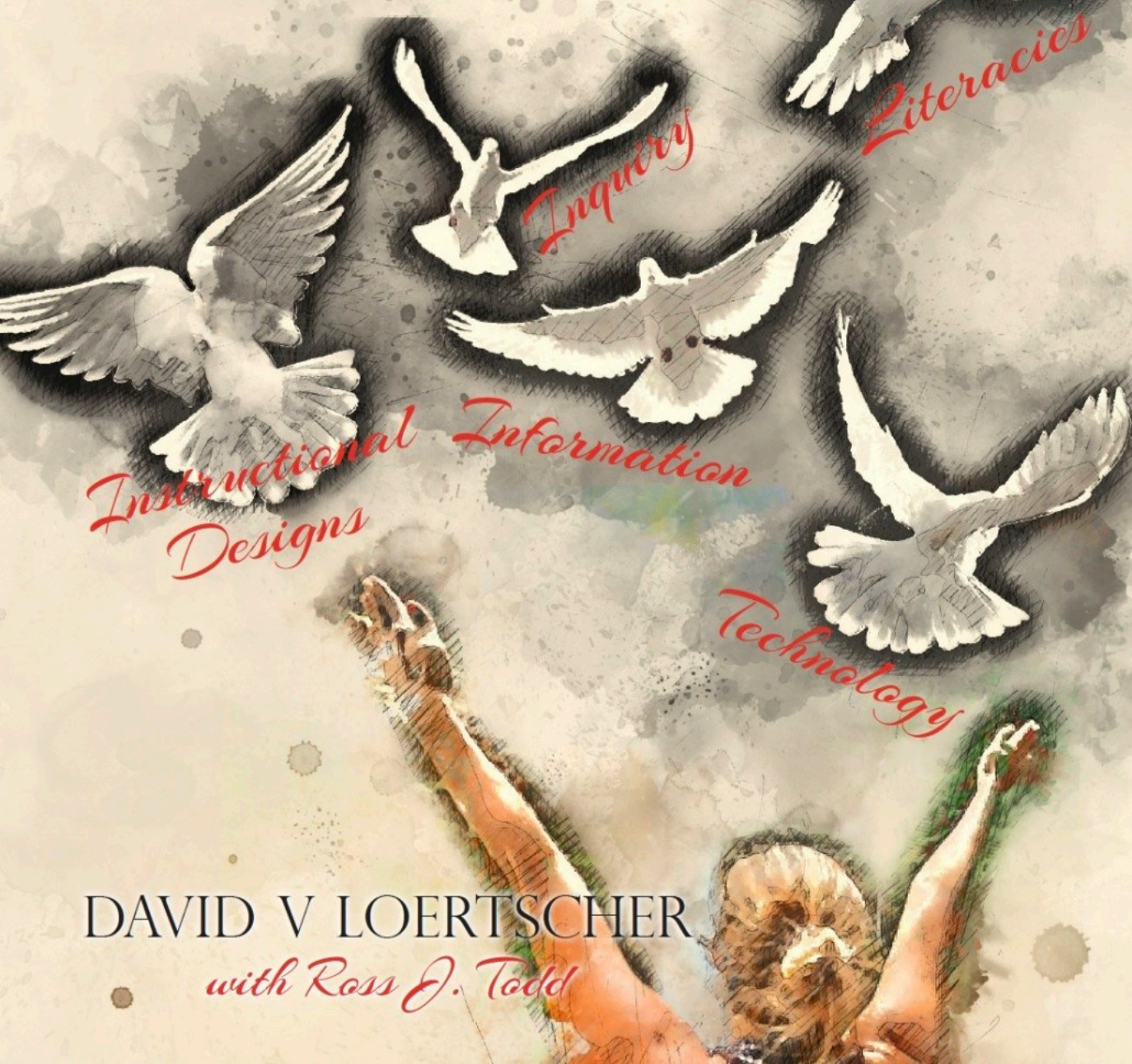
Literacies

Instructional Designs

Information

Technology

DAVID V LOERTSCHER

with Ross J. Todd

We Boost Teaching and Learning

Micro Documentation Measures
for Teacher Librarians

David V. Loertscher
With Ross J. Todd

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Chapter 5: The Contribution of an Information Rich Environment to Teaching and Learning

Chapter 6: Inquiry and Information Literacy

Introduction

Some years ago, Ross J. Todd gave the keynote address for the International School Library Association Conference. During his speech, he elaborated on research that he had done in Australia linking school information literacy teaching to academic achievement. After that speech, I resolved to gather the many thoughts I had written about for years in the area of evaluation, develop new techniques, and try to publish a practical volume for school library media specialists. Dr. Todd graciously agreed to write a theory chapter for the book that was titled *We Boost Achievement*.

The first book appeared in 2003. Now in 2018, a resurgence of interest in measuring the impact of library learning commons programs has prompted a rethinking with a wider scope: from just achievement scores to a broader look at the impact on teaching and learning. It is very interesting, as an author, to go back over the thinking of the last 15 years, and while much has stayed the same, the explosion of information, technology, and the development of the concept of the library learning commons has required much revision.

This volume has also been revised based on the development of The LIIITE Model by the author and Fran Kompar from Connecticut. This model divides the contribution of the teacher librarian into six major topics:
- Literacy
- Information
- Inquiry
- Instructional design
- Technology
- Expertise

The Lance studies and other research of the past decade have put the contribution of library media programs on the table – as I like to say, we are the milk on the cereal, not the butter on the bread. We have all applauded those studies, and they have been used across the country to bolster our efforts to keep our vital programs alive. But state studies do not answer the question, "What contribution am I making to achievement in my school?" This volume was prepared with the building-level teacher librarian in mind.

Evidence-based practice, micro documentation, or data-driven decision-making are terms that ask library media professionals to base what they do every day on evidence they collect about their impact. That is, instead of going to school in the morning and responding to emergencies at a frenzied pace (quite possible in any school library learning commons), our agenda followed by our action is based on what we can and do contribute to teaching and learning. Do we shelve books or design a reading log for a dinosaur unit? Do we rearrange the furniture or plan collaboratively with a teacher for her next unit? Evidence-based practice asks us to monitor our days so that as we discover our best techniques for raising achievement, we put high priority on those activities as opposed to those that contribute little or nothing.

After Ross Todd's introduction and challenge about the area of evidence-based practice, a framework is set out for collecting evidence and data from:
- The learner level
- The teaching unit level
- The organization level

And in two dimensions:
- Direct evidence
- Indirect evidence

Then chapters concentrate on the areas of the library media program that should be measured: Collaboration as the basic element followed by measures in each area of the LIIITE Model.

A banquet of measures has been provided for the teacher librarian who can select, adapt, modify, and use in a local effort to ascertain impact. And finally, we present some suggestions on how to present such documentation to teachers, administrators, boards, and our parents in the schools we serve.

The authors sincerely hope that teacher librarians will find a number of measures useful in their practice. We hope you will modify and adapt what we suggest to your own situation, create new impact measures, and use micro documentation to demonstrate what is really happening. Comments and suggestions are always appreciated.

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November, 2017
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Master List Of Measures Of Evidence By Number

Collaboration
1. Measure the Percent of Learners Who Meet or Exceed Both Classroom Teacher's and Teacher Librarian's Expectations
2. Measure the Time Spent Collaborating
3. Chart the Move From "Bird Units" to Quality Learning Experiences in the LLC (Teaching Unit Level)
4. Gauge the Dispersion of Collaboration Across the Faculty (Organization Level; Indirect)
5. Gauge the Sophistication Level of Learning Experiences Across Time (Organization Level; Teaching Unit Level)
6. Joint Assessment During Collaboration (Teaching Unit Level)
7. Tell Stories!

Reading
1. Document Access to Reading, Viewing, and Listening Materials for Individuals (Learner Level)
2. Do a Classroom Reading Audit (Teaching Unit Level)
3. Document Online Access to Reading, Viewing, and Listening Materials (Organization Level)
4. Document Organizational Access Policies to Reading Materials (Organization Level)
5. Gauge Free Voluntary Reading (All Levels)
6. Have Learners Keep Reading Logs for Special Purposes (Learner Level)
7. Ask Who Likes to Read (Learner Level)
8. From Reading to Writing and Reporting
9. Writing, Creating, Producing, and Sharing
10. Tell Stories

Information Literacy
1. Use the OPAC to Describe the Collection (Organization Level)
2. Describe and Rate Topical Collections That Support Specific Curricular Topics (Teaching Unit Level; Organization Level)
3. Probe the Use of the Collection During a Learning Experience (Learner Level; Teaching Unit Level)
4. Document the Development or Improvement of a Topical Collection That Supports a School or Curricular Initiative (Teaching Unit Level; Organization Level)
5. Document the Progress Toward Connection and Connection Development (Organization Level)
6. Tell Stories

Inquiry
1. Pair Inquiry Skills to Content Knowledge Skills in Order to Ascertain Directly What Has Been Learned (Learner Level)
2. Demonstrate That You as the Teacher Librarian Have A Curriculum of Inquiry Ready to Embed in Co-taught Learning Experiences (Organization Level)
3. Demonstrate That the Inquiry Curriculum Fits Easily into Whatever Learning Initiative is Going on in the School (Organization Level)
4. Do A Before/After Learning Journey Analysis with the Students (Learner Level; Teaching Unit Level)

5. Test the Impact of Separate "Grades" for Content Learning and Process Learning for a Co-taught Learning Experience (Learner Level)
6. Research Logs: Writing and Learning About Research and About Me (Learner Level)
7. The Measurement of Individual Information Literacy Skills (Learner Level)
8. Tracking the Information Literacy Skills Taught (Teaching Unit Level; Organization Level)
9. Document Progress by Learners at All Ages in Creating Their Own Personal Learning Environment (Learner Level)

Instructional Design
1. Document Each Transformed Instructional Design and Compare it to the Old Method (Teaching Unit Level)
2. Document Both Types of Umbrella Experiences and Contrast the Difference They Make with Learners (Learner Level; Teaching Unit Level)
3. Document the Contrast Between Individual Expertise, Cooperative Group Work, and Collaborative Intelligence (Learner Level)
4. Document the Rise of Learner Motivation, Soft Skills, and Content Knowledge as a Result of Design Changes (Learner Level)
5. Document Over Time the Impact of the Big Think Episodes on the Design of Learning Experiences (Teaching Unit Level; Organization Level)
6. Document the Role Changes That Happen for Both the Classroom Teachers and the Teacher Librarian Because of Instructional Design Changes (Organization Level)
7. Document the Sophistication Level of Learning Experiences Across Time When Instructional Designs Improve (Organization Level)
8. Create a Museum of Transformed Learning Experiences on the Virtual Learning Commons LLC Website (Teaching Unit Level; Organization Level)
9. Tell Stories That Compare the Old Method to the New Instructional Design (Teaching Unit Level; Organization Level)

Technology
1. Tech Reliability (All Levels)
2. Tech Accessibility (All Levels)
3. The Virtual Learning Commons: System of Choice? (Learner Level)
4. Tech Efficiency (All Levels)
5. Reflecting With Students About Technologies They Used During a Learning Experience
6. Judging Glitz vs. Content in Tech Products (Learner Level)
7. Use the Tech Learning Ladder as a Before / After / So What? Chart (Organization Level)
8. Use the SAMR Model to Do Brief Case Studies of Before/After Changes in Tech Use During a Learning Experience (Teaching Unit Level; Learner Level)
9. Use the LIIITE Model to Demonstrate the Embedding of Technology into Learning Experiences Across the School (Organization Level)
10. Feature the Best of the Best Tech Projects on the Front Page of the Virtual Learning Commons (Learner Level; Organization Level)
11. Ask the Tech Team to Develop Videos About the Excellent Use of Technology in Learning to Post on the LLC YouTube Channel (Organization Level)
12. Ask Learners to Keep a Journal Across Learning Experiences That Demonstrate Their Skill in the Use of Technology (Learner Level)
13. Sponsor a Technology Fair Alongside or Integrated into Other Celebrations for Parents and the Community (Organization Level)

1 Evidence-Based Practice
Overview,
Rationale,
And Challenges

By
Ross J. Todd

Editor's Note

This chapter was written for a different version of this book in 2003. After 15 years, it reads, but with a very few obvious older references, a magnificent defense of the need for teacher librarians to document their contribution to teaching and learning. The urgency is the same today as it was then. Enjoy!

Introduction

This chapter provides an overview of the concept of evidence-based practice as it applies to school library programs. It situates the elaboration of this important concept within a discussion of the core beliefs around which an effective school library program is based. It provides an overview of the emergence of the notion of evidence-based practice within the health sciences and social sciences fields, and defines this concept within the profession of school librarianship. Though a recent research study undertaken in 2002-3, it identifies and discusses some of the approaches and strategies to evidence-based practice, as well as presents some of the barriers and enablers.

Core Beliefs: Difference, Intervention and Outcomes

The provision of effective school library services and ensuring the vital future of school libraries rests on three key beliefs which are the mandate and for the professional role of school librarians. The first key belief is that the provision of information and information services makes a DIFFERENCE to the lives of people. If we do not believe that our information services can make a difference to people, then there is no point to their provision. An enormous body of research in librarianship and information science over several decades shows that people are not merely passive recipients of information, empty receptacles into which information can be poured; rather, people engage actively and highly selectively with information that surrounds them, and this engagement with information has some effect – their existing

knowledge is changed or transformed in some way. This "effects" or "difference" orientation is faithful to the Greek and Latin roots of the word "information": *in =* within; *formere* = to shape or form; that is, information's effect is inward forming. Conceptualizing information as it is internalized by people, and in terms of the differences or effects that information makes to people puts emphasis on the user of information, and shifts the professional responsibility from a concern about the transmitting and transferring of information - an access and exchange orientation - to a concern for understanding the human dimensions of how information enables people to build new understandings and move on with their lives.

Second, learning in complex and diverse information environments does not happen by chance, and nor can it be left to chance. The key role of the school librarian centers on pedagogical INTERVENTION that directly impacts on and shapes the quality of student learning through their engagement with information. Explicit, systematic and planned pedagogical intervention must be the distinguishing and observable characteristic of the role of the school librarian. This role revolves around working closely with classroom teachers to design authentic learning experiences and assessments that integrate a range of information and communication abilities needed to meet curriculum objectives, and to provide learning opportunities that encourage students to become discriminating users of information and skilled creators of new knowledge. Underpinning this approach is the belief that people's engagement with information is something that does not happen by chance, and which cannot be left to chance. Information literacy, as the centre piece of the instructional role of the teacher-librarian, is about pedagogical intervention. It is about the systematic and explicit provision of a range of intellectual scaffolds for effective engagement and utilisation of information in all its forms (electronic, print, popular culture) and for constructing sense, understanding and new knowledge. Instructional intervention is about moving beyond chance encounters with information to a more formal systematic and explicit approach through embedding learning scaffolds into the teaching and learning process. The research evidence to date suggests that deliberately planned pedagogical intervention impacts positively on mastery of information scaffolds, mastery of content, and attitudes to self, to learning, and to schooling in general.

This essential role is clearly expressed in the International Federation of Library Associations and Institutions (IFLA) Manifesto for School Libraries (http://www.ifla.org/VII/s11/pubs/manifest.htm). It states that "the school library offers learning services, books and resources that enable all members of the school community to become critical thinkers and effective users of information in all formats and media", and that core school library services center on dimensions such as "supporting and enhancing educational goals as outlined in the school's mission and curriculum", "developing and sustaining in children the habit and enjoyment of reading and learning, and the use of libraries throughout their lives", and "working with students, teachers, administrators and parents to achieve the mission of the school". It is also clearly expressed in *Information Power: Building Partnerships for Learning* (1998): "An effective instructor of students, the library media specialist is

knowledgeable about current research on teaching and learning and skilled in applying its findings to a variety of situation--particularly those that call upon students to access, evaluate, and use information from multiple sources in order to learn, to think, and to create and apply new knowledge … Working with the entire school community, the library media specialist takes a leading role in developing policies, practices, and curricula that guide students to develop the full range of information and communication abilities. Committed to the process of collaboration, the library media specialist works closely with individual teachers in the critical areas of designing authentic learning tasks and assessments and integrating the information and communication abilities required to meet subject matter standards". Very clearly, pedagogical intervention is at the core of being a school librarian. The importance of this centers on actions, changes and effects – effects in relation to personal, social, intellectual and emotional needs and well being; effects that make a difference to the lives of people. It is about outcomes. Outcomes are the transforming effects of pedagogical intervention.

Third, the role of pedagogical intervention is to bring on TRANSFORMATION. Learning takes place, and the lives of our students are transformed. The knowledge, skills, attitudes and values of learners are shaped and grow though their engagement with the school library and its pedagogical intervention. Learning outcomes matter. Learning outcomes, as the transforming effects of the school librarians' pedagogical (and collaborative) intervention, are the raison d'être for school libraries. *Information Power: Building Partnerships for Learning* (1998) asserts: *"*In their unique roles as information specialist, teacher, and instructional consultant, library media specialists actively participate in both the planning and implementation of outcomes-based education". AASL's position statement on the role of the school librarian in outcomes-based education establishes that the school librarian "has an essential role in curriculum development. Outcomes-based education is a curriculum practice which establishes clearly defined learner outcomes based on the premise that all students can be successful learners. High expectation outcomes, which are essential for success after graduation, require carefully aligned curriculum, instructional strategies and performance-based assessment. In their unique roles as information specialist, teacher, and instructional consultant, library media specialists actively participate in both the planning and implementation of outcomes-based education".

An outcomes focus of school libraries is also clearly in line with syllabus developments across many countries, where emphasis is given to specifying learning outcomes, establishing measurable indicators for these outcomes, and providing feedback to the learning community of the achievement of these indicators. An outcomes focus is directed towards maximizing learning experiences of students, and where attention is given to identifying, understanding, and coming to terms with the real effects of information literacy interventions.

Lorenzen, Library Instruction Coordinator at Michigan State University defines outcomes-based education as a "method of teaching that focuses on what students can actually do after they are taught. All curriculum and teaching decisions are made

based on how best to facilitate the desired outcome. This leads to a planning process in reverse of traditional educational planning. The desired outcome is selected first and the curriculum is created to support the intended outcome" (Lorenzen, 1999:141). Boschee and Baron define outcomes as" future oriented, publicly defined, learner-centered, focused on life skills and contexts; characterized by high expectations of and for all learners, and sources from which all other educational decisions flow" (Boschee & Baron, 1994). Towers posits that "education that is outcome-based is a learner-centered, results-oriented system founded on the belief that all individuals can learn" (Towers, 1996: 19). Spady and Marshall further define outcomes as "clear, observable demonstrations of student learning that occur after a significant set of learning experiences. … Typically, these demonstrations, or performances, reflect three things: (1) what the student knows; (2) what the student can actually do with what he or she knows; and (3) the student's confidence and motivation in carrying out the demonstration. A well-defined outcome will have clearly defined content or concepts and be demonstrated through a well-defined process beginning with a directive or request such as 'explain,' 'organize,' or 'produce.' (Spady & Marshall, 1996: 20,21).

Speaking from a constructivist perspective, Wilson (1996:3) claims that learning which emphasizes "meaningful, authentic activities that help the learner to construct understandings and develop skills relevant to problem solving" is the central mission of the school. Hein (1991) emphasizes the idea "that learners construct knowledge for themselves; each learner individually (and socially) constructs meaning as he or she learns. Constructing meaning is learning. There is no other kind". These are powerful words. He goes on to say that "Learning is a personal and social construction of meaning out of the bewildering array of sensations which have no order or stature besides the explanations which we fabricate for them". The instructional interventions of school librarians centering on information literacy are about providing the best context and opportunities for people to make the most of their lives as sense-making, constructive, independent people. The provision of information does not necessarily mean that our learners become informed. Information is the input; through this input, existing knowledge is transformed, and new knowledge - as understanding, meaning, new perspectives, interpretations, innovations – is the outcome. Empowerment, connectivity, engagement, and interactivity define the actions and practices of the school library, and their outcome is knowledge construction: new meanings, new understandings, new perspectives. These new knowings are the heart of outcomes-based education.

Against this backdrop, take a look at this scenario, a cry that is being repeated time and time again in many school libraries around the world:

I am a school librarian at x. We are confronting a serious situation. Because of the financial crisis in our community, our school board is addressing a proposed substantial budget cut. One of the proposed strategies is to drastically reduce the number of school librarians in the area claiming that school libraries can be effectively run by aides to ensure services are provided and the library remains

open. This is despite the fact that I have hundreds of students in the library each day, and teach in the classroom regularly. I have voiced my objection, but I am told that such reductions will not impact on student learning in any way.

The focus on difference, intervention and transformation raises one of the most critical questions facing school libraries today. The question is this: "what differences do my school library and its learning initiatives make to student learning outcomes? Or, expressing it another way: what differences do my library and its learning initiatives make to student learning? That is, what are the differences, the tangible learning benefits, defined and expressed in ways that lead a school community to say: "we need more of this!" rather than to say "we must cut school library programs".

The strong voice of the profession has to be telling the story of how effective school libraries make a difference to the learning outcomes of students. This is not just other school libraries, but YOUR school library as well. How does your school library make a difference to student learning outcomes? If your local newspaper phones you and says: "We want to do a story on your school library and how it really helps students learn", what would be your response? Could you quickly draw on a portfolio of actions and evidences to build your case? If your school board, in its efforts to distribute a meager budget amidst budget cuts, asked you to give clear summary of how your school library has impacted on the students in your school in order to help its deliberations, what would you say? And how would you know this? If your principal or superintendent asked you to provide an overview of the current research on school libraries and their impact on meeting curriculum standards, technology standards, on independent and lifelong learning, what would be your response? The answer centers on the notion of evidence-based practice. Key stakeholders, educational policy makers and funding agents sometimes do not convincingly see the links between what school librarians espouse and do on a day by day basis, and how that enables the learning outcomes of students.

Evidence-Based Practice

Evidence-based practice is where day-by-day professional work is directed towards demonstrating the tangible impact and outcomes of sound decision making and implementation of organizational goals and objectives. It is an evolving concept in many professions, and for many it represents a new paradigm for professional practice. It emerged in the early 1990s in the fields of Medicine and Health Care Services initially to teach medical students how to independently find, appraise and apply the best evidence, and to apply it to solving clinical problems (O'Rouke, 1998, 1). Sackett defined evidence based medicine as the "conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients. This practice means integrating individual clinical experience with the best available external clinical evidence from systematic research" (Sackett, 1996, 72-3). Implicit in this approach are important concepts such as "duty of care", "informed decision making" and "optimal outcomes", all seen as critical factors in making a difference to the well being and lives of people. At a fundamental level, the

early evidence-based practice movement had as its goal the tangible capacity to make a difference to the lives of people, through carefully informed intervention to achieve optimal outcomes - DIFFERENCE, INTERNVENTION, and TRANSFORMATION. Interest in evidence-based practice has grown exponentially since the early 1990s, and today it is acknowledged as an important approach to professional practice in many disciplines beyond the health care arena, to professional arenas such as education, social work and law.

Central to evidence-based practice is the combining of professional expertise, insight, experience and leadership with the ability to collect, interpret, and integrate valid, important and applicable user-observed and research-derived evidence to ensure significant outcomes (E-BEUK, 2002, 1). More recent explications of this concept establish evidence-based practice as an approach to professional work which argues that policy and practice "should be capable of being justified in terms of sound evidence about the likely effects" (E-BEUK, 2002, 1). Underpinning its role in education is the belief that student learning and student learning outcomes are "too important to allow [them] to be determined by unfounded opinion, whether of politicians, teachers, researchers or anyone else" (E-BEUK, 2002, 1). In other words, duty of care centers around being able to articulate clear learning outcomes, developing processes and strategies to enable these, and articulating the impacts.

In current usage, the concept of evidence-based practice thus has two important dimensions. First, it focuses on the conscientious, explicit and carefully chosen use of current best research evidence in making decisions about the performance of the day-by-day role. Second, evidence-based practice is where day-by-day professional work is directed towards demonstrating the tangible impact and outcomes of sound decision making and implementation of organizational goals and objectives. This latter dimension of evidence-based practice centers on local processes, local actions and local outcomes. A number of important notions are embedded in these dimensions. As a particular approach to practice, it moves beyond intelligent guesswork, clever hunches, and application of individual skills; beyond the anecdotal and tossing of coins so to speak, to establishing a sound research-based framework for decision making. However it is more than getting research into practice to guide day-to-day work. It is also about focusing on the delivery of services based on stated goals and objectives, and systematically demonstrating outcomes and endpoints in tangible ways, and critically reflecting on inputs and processes. It plays an important role in user-centered services to show that the rhetoric about those services is real, that expectations are met, and promised outcomes are actually delivered. In the context of school libraries and school goals and objectives, evidence-based practice means that the day-by-day work of school librarians is directed towards demonstrating the tangible impact and outcomes of services and initiatives in relation to student learning outcomes. It involves critically analyzing the accumulated data and on the basis of indicators, and deriving statements about student learning outcomes. What is important is that such evidence is cumulated, analyzed and synthesized so that a learning outcomes profile of students engaging in library learning initiatives can be constructed.

Build on the Existing Research Evidence

There is much research evidence already established in the school librarianship field that, when coupled with the enormous professional experience and wisdom of school librarians, can contribute to the sound development of meaningful learning experiences for students and for charting and documenting student learning outcomes. While the research agenda in relation to school libraries has taken shape only within the last twenty or thirty years, a number of summaries and syntheses of this research have been published (Loertscher & Wools, 2002; Callison, 2001, and Haycock, 2003. Within this corpus of research, Callison (2001) identifies important themes such as instructional role, instructional methodologies, intellectual freedom, information search process, students' use of online technologies, program evaluation, and student achievement. Clyde (2002:66) identifies growth from 1991-2000 in the focus on national surveys, information literacy, information technology, principal support, and reading and reading promotion.

Some of the most prominent work comes from the USA. The state-wide studies undertaken by Keith Curry Lance and colleagues have involved hundreds of primary and secondary schools, and include: Colorado I (1993); Alaska (1999); Colorado II (2000); Pennsylvania (2000); New Mexico (2001); Oregon (2001); and Texas (2001). A similar study has been undertaken by Baughman (2000) in Massachusetts. These important studies have sought to empirically establish the relationship of school library programs to student achievement, and support several common findings. These include: professionally trained school librarians do make a difference that affects students' performance on achievement tests; in order for school librarians to make this difference, the support of the principals and teachers is essential, as well as the availability of support staff who can free the librarians from routine tasks to undertake their curriculum role; a dual instructional role of teaching students in facilitating the development of information literacy skills necessary for success in all content areas, and in-service trainers of teachers enabling them to keep abreast of the latest information resources and networked information technology services within and beyond the school library. These are very significant outcomes, and hopefully they should motivate and inspire school librarians to pursue their instructional role, or at least to question and reflect on their own practices if they do not include this strong instructional role.

The longitudinal research of Carol Kuhlthau (1991, 1993, 1994, 1999) provides some of the fundamental building blocks for the collaborative instructional role of the school librarian centering on information literacy development. This research provides evidence of the nature and dynamics of inquiry based learning centering on the information search process, and the nature of information literacy pedagogy. With a strong focus on knowledge construction through effective engagement with a variety of information sources and formats, Kuhlthau's research establishes the cognitive, behavioral and affective dimensions of the search process. Her Information Search Process (ISP) found to occur in seven stages: Initiation, Selection,

Exploration, Formulation, Collection, Presentation, and Assessment, also provides a framework for gathering evidence on the learning journey of students as they progress from the time of the initiation of their research task, to the time they complete it and reflect on its outcomes.

Some very rich research on the impact of school libraries and learning is being undertaken by the Council for Museums, Archives and Libraries in Scotland. The research was conducted in secondary schools in Scotland between August 1999 and February 2001, and involved focus groups with teachers and students in selected schools across Scotland. Both groups shared a common perspective that the school library can contribute to learning. The collective perceptions of impact of the school library were: the acquisition of information and wider general knowledge; skills development in the areas of finding and using information, computer technology skills and reading skills; higher achievement in school work; developing a study and reading habit that encouraged independent learning; the ability to use these skills confidently and independently and the ability to transfer these skills across the curriculum and beyond school; and the development of interpersonal and social skills, including working collaboratively (Williams & Wavell, 2001: i). In this study, the school librarians interviewed were aware of what they were trying to achieve, but were not sure whether their objectives were being met. The study identifies some potentially useful tools for school librarians to monitor the impact on learning. These include: student observations of their activities and learning in the school library; discussion with and questioning of students about their work during and at the end of their activities; analysis of submitted work to identify learning gains; discussion with other members of the teaching staff about work, attitudes, and related incidents; and examination of reader records.

There is also considerable amount of smaller research studies that examine more closely the many different dimensions of the relationship between student learning outcomes and school library programs. Collectively these highlight:

- a process inquiry approach, focusing on the systematic and explicit development of students' abilities to connect with, interact with, and utilize information to construct personal understanding, results in improved performance in terms of personal mastery of content. This is shown in examination and assignment grades, and through the mastery of a wide range of particular information skills;

- successful information literacy programs are ones that set clear expectations and manageable objectives, establish realistic timelines, and provide opportunities for students to reflect on their successes and failures with finding and using information;

- the systematic and explicit development of students' abilities to connect with, interact with, and utilize information to construct personal understanding, results in: more positive attitudes to learning; increased active engagement in

the learning environment; and more positive perceptions of students themselves as active, constructive learners;

● when students master a range of information processes – technical, critical, evaluative – they are empowered to learn for themselves; there is a strong relationship between an effective school library and personal agency;

● active reading programs encouraged by the school library can foster higher levels of reading, comprehension, vocabulary development, and language skills;

● when there is access to diverse reading materials, more reading is done, and literacy development fostered.

While the concept of school library outcomes, effectiveness and evaluation are not new, historically these has been directed to outputs in the form of statistical information related to resources, expenditure and facilities use – "the found", rather than in terms explicitly stated learning outcomes that identify and demonstrate the tangible power of the school library's contributions to the schools' learning goals and learning outcomes – "the understood". Historically, school libraries have celebrated the found. They have documented, for instance, the number of classes in the library, the number of library items borrowed, the number of students using the library at lunch times, the number of items purchased annually, the number of web searches or hits, the number of resources purchased, even the number of books lost or monies collected in fines! These are measures of pathways to learning, not of learning itself. Celebrating the understood is what evidence-based practice is all about. It is knowing and showing how the school library helps students learn, and the learning outcomes that are enabled. The research documented above clearly shows that learning outcomes can be charted in terms of: information processes and skills, mastery of networked information technology, reading, knowledge outcomes such as mastery of content, development of personal perspectives and viewpoints, independent learning strategies, changed attitudes and values, and gains in self concept and personal agency. These are knowledge and values outcomes, not merely information literacy skills outcomes. Evidence-based practice is about ensuring that daily efforts put some focus on not just gathering meaningful and systematic evidence on learning outcomes that matter to the school and its support community, and critically reflecting on this evidence to shape a dynamic school library program that clearly impacts on student learning outcomes. This evidence-centered cycle of development and reflection will clearly convey that learning outcomes are continuing to improve, and inform the process of their continued improvement.

From Research to Evidence-Based Practice

What are school librarians doing in relation to evidence-based practice? How do school librarians get underway with evidence-based practice? These questions are increasingly posed in the profession (Todd, 2001, 2002a, 2002b). One of the first ever

studies of school librarians and evidence-based practice was undertaken in 2002 in Australia (Todd, 2003a, b). As a prelude to the focus of this book on the practice of school library evidence-based practice, this study will be briefly elaborated. This study, sought to:

(a)   provide more comprehensive and detailed evidence of how the teaching and learning focus of the school library improves student learning outcomes – what these outcomes actually are, and how school librarians can more effectively work towards these;

(b)   provide school librarians with a range of strategies, initiatives and measurement techniques that will enable them to carefully and effectively chart and document the tangible learning outcomes of their teaching-learning activities;

(c)   enable school librarians to be able to build a portfolio of local school evidence of the importance and value of the school library to their school communities; and,

(d)   identify barriers of evidence-based practice.

In this particular study, a survey instrument based on a Critical Incident approach was used to collect the data. The Critical Incident Technique, based on work of J. C. Flanagan (1954) centers on the collection of detailed reports of incidents / discreet experiences in which individuals do something in achieving an articulated purpose. Based on this technique, data are derived chiefly from in-depth analytical description of an "intact cultural scene", involving the gathering of facts before, during and after the event or experience. Typically this approach uses an open-ended questionnaire, gathering retrospective data, and where questions typically help respondents recall events or steps in the events. The questionnaire collected data on school background, and to identify evidence-based practice, respondents were asked to describe one of the most recent curriculum units that she or he had planned and taught collaboratively with classroom teacher(s). The focus was to get an indication of what learning outcomes were achieved, and how respondents were able to identify these. Unit details included: Year/grade; Syllabus, Number and gender of students; their average age; brief description of students (eg. mixed ability, streamed, gifted and talented); Title of unit; Brief description of the unit (eg. time span of unit, number of sessions, lesson length); Syllabus outcomes addressed by unit (be specific); and Related information skills outcomes of unit. To document learning outcomes and their evidence, respondents were asked to identify:

1. The learning achieved in relation to the planned outcomes;

2. The techniques/measures/strategies/checklists/assessments used to identify that learning had taken place;

3. Learning outcomes in relation to information skills;

4. The techniques/measures/strategies/checklists/assessments used to identify that learning had taken place;

5. Any approaches you used to make before-and-after comparisons with the class.

6. Some other significant learning gains in addition to the planned outcomes, such as attitudes to learning, attitudes to school, self-esteem, developing independence of learning, engagement in learning, increased commitment by teachers to collaborative planning and teaching, informed future planning;

7. The techniques / measures / strategies / checklists / assessments that you used to identify these other outcomes;

8. The barriers experienced in relation to evidence-based practice, and how these barriers might be overcome; and

9. Additional approaches, other than collaborative teaching initiatives to demonstrating the impact of school librarians on learning outcomes.

The survey was distributed in the Australian journal *Scan* in May 2002, which has a circulation of over 3000. 11 responses to this survey were received. These were very rich and detailed responses. A number of reasons could be posited for the low response number. The questionnaire required considerable thought and time to complete, and the busy daily agendas of many school librarians may not have provided the time to complete it, or they may not have considered that the focus and/or outcomes of the study were important, and were unwilling accordingly to invest the time to complete it. It is also possible too that school librarians may not actually engage in evidence-based practice, and therefore have had little to contribute to the study. The responses came from 2 elementary schools and 9 high schools. What follows is a brief summary of some of the findings.

Findings: Learning Outcomes

The school librarians in this study could clearly articulate some curriculum and information literacy outcomes as a result of their instructional and service intervention. The information literacy outcomes ranged across the broad spectrum of skills in relation to defining, locating, selecting, organizing, presenting and assessing information. These were articulated quite concretely. For example, outcomes were expressed in terms students being able to:

- explore general / background information sources to increase familiarity with the topic;

- distinguish between primary and secondary sources;

- construct a search strategy using the appropriate commands for the various retrieval systems chosen;

- use various search systems to retrieve information in a variety of formats;

- record all the appropriate citation information for later use;

- read the text and identify and select the main ideas;

- compare information from different sources to evaluate accuracy, authority, recency and bias;

- show mastery of a particular presentation software;

- construct of concept map of the dimensions of a topic;

- draw conclusions or state personal position based upon information gathered.

Findings: Evidence-Based Strategies

The strategies for documenting evidence of learning outcomes fell into two broad categories: formal, structured records of evidence, and informal observational approaches. The formal structured approaches used to gather evidence were the use of checklists, rubrics, and formal feedback strategies. Each of these is briefly described.

(a) Checklists. A range of simple checklist strategies, where both students and school librarians provided checklist or ratings of perceived levels of skills and / or knowledge acquisition, mainly after the instructional period, and in four cases, both before and after so that comparisons of differences, changes in levels of knowledge and skills could be documented. These checklists were in relation to levels of mastery of information literacy competencies such as ability to identify main ideas, make notes, use different formats of information, understanding the differences in the different purposes of sources; competencies in relation to information technology, such as skills in searching, evaluating information on web sites, and using a range of presentation software such as Powerpoint and spreadsheets.

When checklists were used, some attention was given to deriving general statements about outcomes achieved on the basis of these comparisons. School librarians recognized this as an important process in evidence-based practice. This involved critically analyzing the accumulated data and, on the basis of evidence and goals of the intervention, deriving some general statements about student learning outcomes. Some outcomes statements that respondents were able to provide through use of checklists were:

"More than 80 % of the class showed improvement in their ability to effectively judge the quality of web sites after the sequence of lessons to develop this awareness";
"Virtually all of the students recorded citations accurately in their essays following the input on bibliographic citations";
"When we analyzed the essays submitted at the end, and following through some of the web sites that the students had cited, we saw a dramatic decrease in the level of plagiarism. We had explicitly built this issue into our teaching, and discussed it with the students, both in terms of being responsible and ethical users of information, and teaching them some analytical strategies to express ideas in their own words. We were thrilled, and discussed these findings and processes in our recent staff meeting"
"We ran a quick survey at the beginning of the unit to see how students were thinking about the unit. They were not terribly motivated or interested, and said so in their surveys. In our teaching of the unit, we worked really hard to build interest and motivation, and when we ran the little survey at the end, we had almost all of the students indicating how much fun the unit was, and how much they learned. It was hard work creating motivational activities, but worth it. We not only felt we had achieved something, we had some proof"

(b) Rubric strategies. Some school librarians indicated that they used rubric strategies where students' performance in final products were scaled according to a set of criteria that clearly defined what range of acceptable to unacceptable performances and/or information products look like. For example, a semester paper was based on and scaled according to Gordon's rubric (2001) for evaluating the research process. This rubric focused on a number of dimensions: Planning; Meeting deadlines; Organization; Working with the teacher-librarian; and Problem solving. The students scaled their performance in terms of: Excellent, Competent, Making some Progress, and Not yet competent, and were asked to write personal comments as well as the rating. In the feedback to the students, the school librarian also provided ratings and comments.

(c) Formal feedback strategies. One school librarian used a simple feedback survey every term on what the library does "best" and "least" to help students with their school work. This is a general survey made available to the students which asks two questions: *"During this term, how did the library best help you learn?"* And *"During this term, how could the library help you learn better"?* The school librarian reported that after one intensive collaborative with all the Year 8 teachers on more effectively using the internet for Science, the term survey clearly showed that the students believed that they had quite dramatically improved their web searching skills, not just in terms of finding more pertinent resources, but also in terms of meeting assignment deadlines on time, and feeling more comfortable about using accurate web sites for their research. Each term, the school librarian presented the results of this survey at staff meetings, and commented: *"I do not let an opportunity go by when I let staff know about what the library contributes to learning. I always quote some of the things the students have said to illustrate my points. The school has got the idea that*

what I am on about in helping kids learn. The key thing in my view is to have something to say that goes beyond gut reaction. The student survey does just that. … I believe they listen a great deal to this". According to this school librarian, the feedback is also used to make decisions on improving services, designing information literacy classes, and planning the whole library team's work agenda.

(d) Informal Observational Approches. The use of <u>informal observational approaches</u> was more predominant than the use of planned strategies for recoding evidence. All school librarians indicated that their observations and in a few cases, observations of teachers were the basis for making statements about learning outcomes. These were based on discussions and observations during the teaching time, and on review of student products. The approaches were *"gut reactions",* drawing on professional expertise and experience to identify outcomes. School librarians said:

> *"I rely on my long experience to work out what is happening with the students";*
> *"I watch the students casually though fairly consistently while they work in the library";*
> *"I get ideas from the kids of questions students ask when they are in the library";*
> *"Often when I am chatting to a student doing a major assessment item, I will ask them about what they have learned in the library".*
> *"I have discussions with the teachers about what is going on"*
> *"I take note of student behaviors while they are in the library"*

These more informal approaches to gathering evidence enabled the school librarians to make some statements about learning outcomes. For example:

> *"The class teacher noted an improvement"*
> *"Students completed learning journals"*
> *"Students were certainly engaged in their learning"*
> *"Students showed quite a lot of independence"*
> *"Students worked well in groups"*
> *"I saw increases in student motivation"*
> *"Students displayed all or nearly all of the information skills"*
> *"Students initiated email interaction and to me this showed engagement with the topic"*
> *"I saw evidence of improved or extended technical vocabulary"*
> *"The technology was used beyond my expectation"*

What is particularly noticeable with the statements of outcomes based on casual observations and discussions is their lack of specificity and precision. Concrete outcomes were not clearly articulated. This is consistent with the finding of Williams & Wavell (2001, iii) in their study of secondary schools in Scotland. They found that techniques such as observing students at work, questioning students about their work,

examining work in progress, examining reader records, and discussions with teachers were typical techniques to monitor impact of learning. However, they also concluded that while the librarians were aware of what they wanted to achieve, they were not able to clearly and precisely articulate these as learning outcomes.

(e) Other Approches. Two further approaches were provided in the study. One school librarian examined the results of Year 7 English Language and Literacy Assessment tests, and sought to identify how one class group involved in an intensive reading enrichment program and literature discussions, compared to other students in the school. The school librarian noted that there appeared to be stronger test scores for this group of students. Another school librarian compared borrowing records of students during a collaboratively implemented science unit in the lower high school, and found that those students with the highest number of items borrowed for the unit also achieved the highest scores on the test at the conclusion of the unit. While it is difficult to establish strongly stated conclusions, such patterns show promising school library-outcomes relationships worthy of richer documentation.

Findings: Value of Evidence-Based Practice

Despite concerns and fears expressed about the intentions, processes and competencies in relation to undertaking evidence-based practice, school librarians identified 6 key benefits of evidence-based practice.

(1) <u>Visibility of the school library's contribution to learning.</u> Evidence-based practice was seen to provide evidence at the local school level that library initiatives make a visible contribution to learning, and that administrators, teachers and parents can see the real impacts:

"My boss actually talks about specific outcomes I have identified. He's proud of what we have achieved, and it's not because I tell him how important our school library is, it is because I actually show him the evidence. He shares this with the parents in the school newsletter"

(2) <u>Funding accountability.</u> Evidence-based practice is seen to play a role in convincing administrators and community funding agencies that the money invested in the school library is worth it, as well as ensuring continued funding:

"Money in my school seems to flow easiest to those happenings / teachers in the school where students achieve success, and it is clearly seen … anything which show learning and success and which the school celebrates. I've learned over the last year or so that if I want to jump on the money bandwagon, I show the achievements of my library initiatives. This is usually outcomes related to information literacy lessons, or my literature enrichment activities".

(3) <u>The school librarian's role is learning centered.</u> Evidence-based practice demonstrates the school librarian's commitment to learning outcomes, with library goals, library actions and library outcomes having a clear student learning focus:

"When I tell the staff or parents about what the library is doing, I always try to tell about what we have achieved for the students, not from the library's perspective, but from the students. … In the parent nights where teachers meet with parents to discuss students' grades, I always set up a display for parents to show our various projects and what the students learn through it. I get lots of positive feedback that recognizes our involvement in students' learning"
and
"My colleagues around the school see and hear me involved in learning. I'm not seen as the circulation police or fines controller, or the shusher or the stamper, I'm seen and valued as a teacher".

(4) <u>Planning for instruction.</u> Evidence-based practice is seen to help school librarians plan more effective instructional interventions and information services:
> *"the feedback from students, and results of analysis of what students have learned or not learned helps me plan my teaching to be more effective, it identifies gaps in students' information literacy skills so I can make it better for them. … Sometimes you can put a lot of effort into something, and then find out it didn't really achieve anything."*
> *"The evidence helps me work out what is really important for me to do each day, rather than concentrating on functional or management things, which sometimes take on a magnitude of importance well beyond the time and energy given to them".*

(5) <u>Job Satisfaction.</u> Some school librarians indicated that evidence-based practice confirms that their profession work is making a difference, and this in turn provides satisfaction and encouragement.
> *"When I can put my finger on what the students have achieved because of my work, I feel terrific, and get more enthused about being a teacher-librarian. I feel as if I am making a valuable contribution to the kids' learning, because I can see some actual results".*
> *"I get a real buzz each day because I know I make a difference to these kids at school"*

(6) <u>Moving beyond advocacy.</u> A number of school librarians indicated that evidence-based practice adds certainty to their role, by moving beyond anecdotal, guess work, hunches, advocacy, and the touting of others' research findings.
> *"I don't have to get on my library soap box and try and convince people about the value of the library. I make a habit of sharing with them details about every set of classroom units I do, and try and sum up how the students have benefited, using examples from their work. I don't think that advocacy without evidence goes far"*

Clearly, the school librarians in this study saw real benefits to their students and to themselves by engaging in evidence-based practice. They saw that it provides evidence at local school level that the school library makes a tangible difference to

student learning outcomes, and de-emphasizes intuition, the anecdotal, and hasty decision making. In essence, evidence-based practice is effectiveness-lead: it targets time, energies, scarce resources, and scarce staffing in improving and demonstrating effectiveness.

Findings: Evidence-Based Practice Issues

Five key issues in relation to evidence-based practice were identified by the respondents.

(1) Accountability fears. Some school librarians felt that having to "*prove your worth*" through pressure to demonstrate learning outcomes and evidence of impact would be detrimental to the profession:

> *"It would encourage more anxiety and paranoia at a time when teacher-librarians' workloads are already full to overflowing"*
> *"evidence-based practice might be used as a basis for getting rid of us. It's something we haven't done, or had had to do, and because we now are not able to produce anything that focuses on what learning outcomes we bring on, we may be assumed to be ineffective when accountability demands are made".*

There are some clear messages here. School librarians are not immune from any kind of accountability for processes and outcomes, particularly at a time when calls for educational accountability are increasing. Accountability is all about taking responsibility for students' performance of all types of educational outcomes. Evidence-based practice is unquestioningly accountable practice. It is a systematic method to assure all members of the school community, policymakers, funding authorities, and the public that schools and school libraries are producing desired results. However, practice that focuses on elements such as goals, indicators or progress toward meeting those goals, measures, analysis of data, reporting procedures, and outcomes is not just evidence-based practice, in most professions it is *best practice*. It is not some new form of teacher-librarianship where the familiar current practice is discarded, where professional instincts and experience are devalued. In linking actions, goals, outcomes and evidence, evidence-based practice enhances day-to-day work by taking uncertainty and guess work out of the role, its value, position, action and its public perception. This is a powerful dimension of professional credibility and authority. Evidence-based practice is about building certainty and authority, not eroding it.

(2) Competency requirements. This issue centers around the assumed competencies needed to undertake evidence-based practice. As some school librarians said:

> *"It seems as if I need to be a statistician to do this. I just do not have these skills, and I disliked research methods at university".*
> *"We have to become researchers in order to undertake evidence-based practice, or at least have a mastery of statistics. Isn't that what the universities should be doing?"*

Some school librarians may feel that they have to become researchers in order to undertake evidence-based practice. Evidence-based practice does demand certain precision in identifying learning outcomes, establishing indicators of these, and skills in analyzing and synthesizing the evidence to establish specific achievements in learning outcomes. However, the intellectual skills required to undertake evidence based practice are not formal quantitative and qualitative research methodologies and complex statistical analyses. Rather, they are the skills of examining student learning goals and needs, selecting appropriate learning outcomes, identifying desired indicators of these outcomes, establishing systematic approaches to locating and gathering the evidence of achieving learning outcomes, analyzing, organizing and synthesizing the outcomes, presenting and celebrating the outcomes in the school community, and reflecting on how this continues to inform the ongoing teaching and learning process. Evidence based practice is about identifying, exploring, locating, focusing, selecting, organizing, presenting information. The information process that has guided the information literacy initiatives of school libraries and which has been the espoused educational platform for almost two decades is the very process of evidence-based practice.

The information process does not claim that school librarians become formal hard-core researchers in the academic sense, but does ask that they be researchers, like students, guided by the information process. It does mean that reflective practices, guided by the available formal academic research, give some careful attention to learner assessment and instructional evaluation, to documenting, analyzing and synthesizing the outcomes of collaborative teaching-learning initiatives, and how these outcomes support and enhance the learning goals of the school. What is important is that evidence is gathered in a systematic way that highlights the learning gains, both in terms of a range of information and critical literacies, but also how developing these scaffolds enables more effective learning of curriculum content and how this contributes to the development of new knowledge. It can also highlight how the library plays a role in shaping attitudes and values, in contributing to the development of self-concept, and in contributing to a more effective learning environment. And apart from the tangible outcomes that demonstrate the central role of the school library in learning, evidence-based practice as best practice provides a wonderful opportunity for school librarians to model the information process to their teaching colleagues.

(3) **Time pressures.** Some school librarians raised the issue of the time commitment needed to undertake evidence-based practice. One said: *"I see the value of evidence-based practice, and have tried to implement measures. It takes time, and I feel the pressure when I have so many other things to do"*. This tension between belief versus action was also reflected in the comment: *"I want to do it, but when do I find the time to do it?"* and *"I do not have enough time to do my current job as it is, let alone adding more, even though I would like to do this"*. One other librarian claimed: *"In reality a lot of evidence is intuitive and the time element squeezes out the more formal measures"*. Compounding the time pressure was the situation of school librarians

scheduled to provide classroom teachers with release from face-to-face teaching: *"I need to be free from providing release from teaching for classroom teachers so that I have time to undertake this. This is a barrier to making real collaboration happen and working together to identify the outcomes"*.

School librarians may feel the time pressure of evidence-based practice. It should not, however, be viewed as an add-on, another thing to do on top of busy schedules. As already stated, evidence-based practice is about best practice and reflective practice, where the process of planning, action, feedback and reflection contributes to the cyclic process of purposeful decision making and action, and renewal and development. It gives emphasis to identifying effective actions, putting value on appropriate actions rather than actions for the sake of doing something. It is sharper and clearer practice – more focused and productive.

(4) <u>Evidence-based practice is contrary to lifelong learning.</u> This issue was raised by one school librarian. It was posited that *"EBP is unrealistic, given the goal of lifelong learning that information literacy is all about. How can one realistically measure this outcome, especially when it may not be evident for many years?"* Lifelong learning is not some distant endpoint, rather, it is a process made up of multiple moments in time. Providing learners with a clear understanding of how they in the formative years of their lives, are actually learning in an information rich environment, particularly in terms of information literacy outcomes and indicators, providing them with feedback on their mastery, enabling them to refine their learning processes are fundamental to the work of school librarians. If indeed the notion of lifelong learning is some elusive rhetoric, and we are unable to provide substance as to how we might enable our students to become lifelong learns with explicit feedback and input along the way, then we are doing considerable disservice to our students. The rhetoric of lifelong learning must not become the scapegoat for not engaging in evidence based practice.

(5) <u>Lack of knowledge and skills to undertake evidence-based practice.</u> This concern was expressed by all school librarians:
> *"I lack the skills in devising accurate assessment tools"*;
> *"I need lots of practice with this to develop my skills"*;
> *"It would be nice to have access to some recent criterion-referenced or standardized tests to assess my students' standards and progress. This is really needed if we are to engage in evidence-based practice"*;
> *"I feel completely unqualified to accumulate sufficient or accurate evidence about what I do, or hope I am doing"*;
> *"I need to learn to write more performance descriptors"*;
> *It would be really helpful to have some school-wide information literacy tests"*;
> *"There are limited training opportunities available to develop new skills, initiatives or approaches to implementing EBP"*.

These comments highlight real needs if the profession is to engage in evidence-based practice, and identify a range of specific themes around which ongoing professional development can be structured. There are implications for teacher librarianship education, particularly in developing both a rationale for, and skills in carrying out evidence based practice. There is also golden opportunity for professional associations to provide the appropriate professional development to its members.

Moving Forward

Evidence-based practice is about opportunities and options. Some school librarians may say "why bother, it's futile", believing that such calls for evidence-based practice represent faddism or short-lived hype; that it may not do any good. This is a defeatist attitude. The more confrontational question is asking: "what are the potential implications and outcomes of not engaging in evidence-based practice?" One school librarian make this thoughtful comment: *"No change in the current situation for school librarians will be forthcoming until they can successfully demonstrate and document evidence of their support, success and impact on children's literacy, with all its ramifications"*. If the answer to this question is a dismal perspective on the status quo, and if there is no personal motivation to engage in professional initiatives that might enable the profession to construct as preferred future, then the issue is a personal one that poses the question: *"Is my role as a school librarian a liability or a liberator of the profession"?* If we are not prepared to commit ourselves to initiatives that have the potential to create a bright future for the profession, then we seriously need to consider why we are in it, and what in fact we might be better off doing. Retreating to a position of no hope is retreating to a short future for the profession.

At this time in our profession, it is not enough to just say that the library is important, nor is it enough to say that there is plenty of evidence out there – why should I waste valuable library time getting mine? Many school administrators, school boards and parent communities are looking for tangible, documented evidence of the impact of their library on student learning, and use this as a basis for providing more library funding, technology, staffing. In a recent study published in School Library Journal (Lau, 2002:53) which explored Principal's perceptions of school librarians, it was found that only 37% of principals said that the school librarian made them familiar with current research of library programs and student achievement, and only 35% of principals were made familiar with current research on reading development. Principals and administrators want to know about student outcomes. The opportunity to identify local outcomes and local successes and to share these with school stakeholders is knocking. Evidence based practice is about having the rich, diverse and convincing evidence that demonstrates that the library is a vital part of the learning fabric of the school – that it is integral, rather than peripheral. Such evidence can also be the basis for richer, meaningful discussion between stakeholders – students, parents, and community. Evidence based practice provides school librarians with a compelling opportunity to "seize the day". It is about empowering both the learner and empowering the profession. It is about improving learning effectiveness

and demonstrating effectiveness. It is an enormous challenge, and one that will contribute to the longevity and vitality of the profession for years to come.

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2

A Framework for Evidence Upon Which to Base Sound Practice (And Tell Our Story)

Educators at all levels are being asked to collect various forms of evidence about the impact of their actions upon achievement. This evidence, added to guidance from educational research, personal experience, and judgmental skills guide what we do each day. This entire process constitutes what we mean by evidence-based practice. It would be the same for a physician: guided by medical research, personal judgment skills, and experience during practice, the patient's health is affected each day.

Traditionally, teacher librarians collected a variety of organizational data that described their programs and allowed comparison to state or national standards. The purpose was to give an indication of support upon which a quality library program could develop. Such data as size of staff, budget, size of collection, numbers of computers, and flexibility of facilities were important, and still are. Yet, they have lost their punch in an academic-achievement-oriented frenzy. It would be the same for doctors who would claim that hospital facilities and equipment are the major factor in restoring health.

Called "input measures," counting people, things, and environments provide a potential impact but not a guaranteed one. For a period of time, the library profession was interested in output measures interpreted as results or outcomes. For teacher librarians, these never did provide a gauge on learning or a link to standardized test scores. They looked at circulation as an output, or the number of visitations of children to the library during a typical week. We needed measures of impact on learning.

The troubling part of extending measurement closer and closer to learning is our inability to invent a thermometer-in-the-mouth that will measure degrees of learning. And our current frustration is centered in the fact that too much faith is being put in the almighty achievement test.

In addition, this author and many others have advocated the transformation of the library into a library learning commons where the program that encourages the *consumption* of knowledge be complemented by the idea that the LLC is a center of the *creation* of knowledge. Thus, it is not only a place to read books, but also write them; a place not only to watch a video, but to create one, a place to use an invention, but also create one in the makerspace; and on, and on, and on.

In this chapter, we present, in almost handout form, a two-pronged look at the type of measures that have the potential to get closer to learning. Since we cannot precisely measure our target, we offer measures that "if it quacks like a duck, waddles like a duck, and looks like a duck, it must be a duck." Substituting the term "achievement," we would say, "If it looks like achievement, acts like achievement, and it performs like achievement, it must be achievement." We would then challenge the doubters to prove that it **wasn't** achievement.

In this chapter, we prescribe multiple views: first, a triangular view followed by a second dimension of both direct and indirect evidence. We will then present a simple matrix to help the teacher librarian see the possibilities of measuring a little every day to create a big picture. Finally, we present ripple-effect measures of programmatic elements that could be measured. It may seem a little daunting at first, but it all forms a matrix that affects practice and planning. Here is an overview of these elements:

Various Types and Levels of Measurements

1. **Triangulation of Evidence-Based Practice** – explains various views our evidence should create and guide the development of a total program.

2. **Micro Documentation of Evidence** – actual measure collected that will be used to support the evidence-based practices that we promote in the school.

3. **Learner Level Evidence-Based Practice** – explains appropriate measures at the student level we might collect.

4. **Teaching Unit Level Evidence-Based Practice** – explains appropriate measures as classes and individuals use the library learning commons for projects or units of instruction that take advantage of the information-rich and technology-rich environment and the expertise of the teacher librarian.

5. **Organizational Level Evidence-Based Practice** – reviews the tried and true measures we have collected for years and suggests a few new ones.

A second dimension of measures:

1. **Direct Evidence** – measures so close to actual learning that confidence in an impact could be inferred.

2. **Indirect Evidence** – measures of actions that set the stage for, provide an environment for, give support to, enable, help, give encouragement to, mark progress toward, and indicate change over time.

During a colloratively planned learning experience, the classroom teacher and the teacher librarian not only set the learning goals, but they create the assessments that match those goals, The teacher librarian would not and should not try to embed every strategy they know into a single learning experience. Likewise, the matching assessments could draw from but not include every single type of evidence possible. The illustration below reminds us to draw in some of the possibilities that make sense, but target which assessments make sense.

Learner
Level

Teaching
Unit Level

Direct
Evidencence

Target of
Evidence

Indirect
Evide

Organization
Level
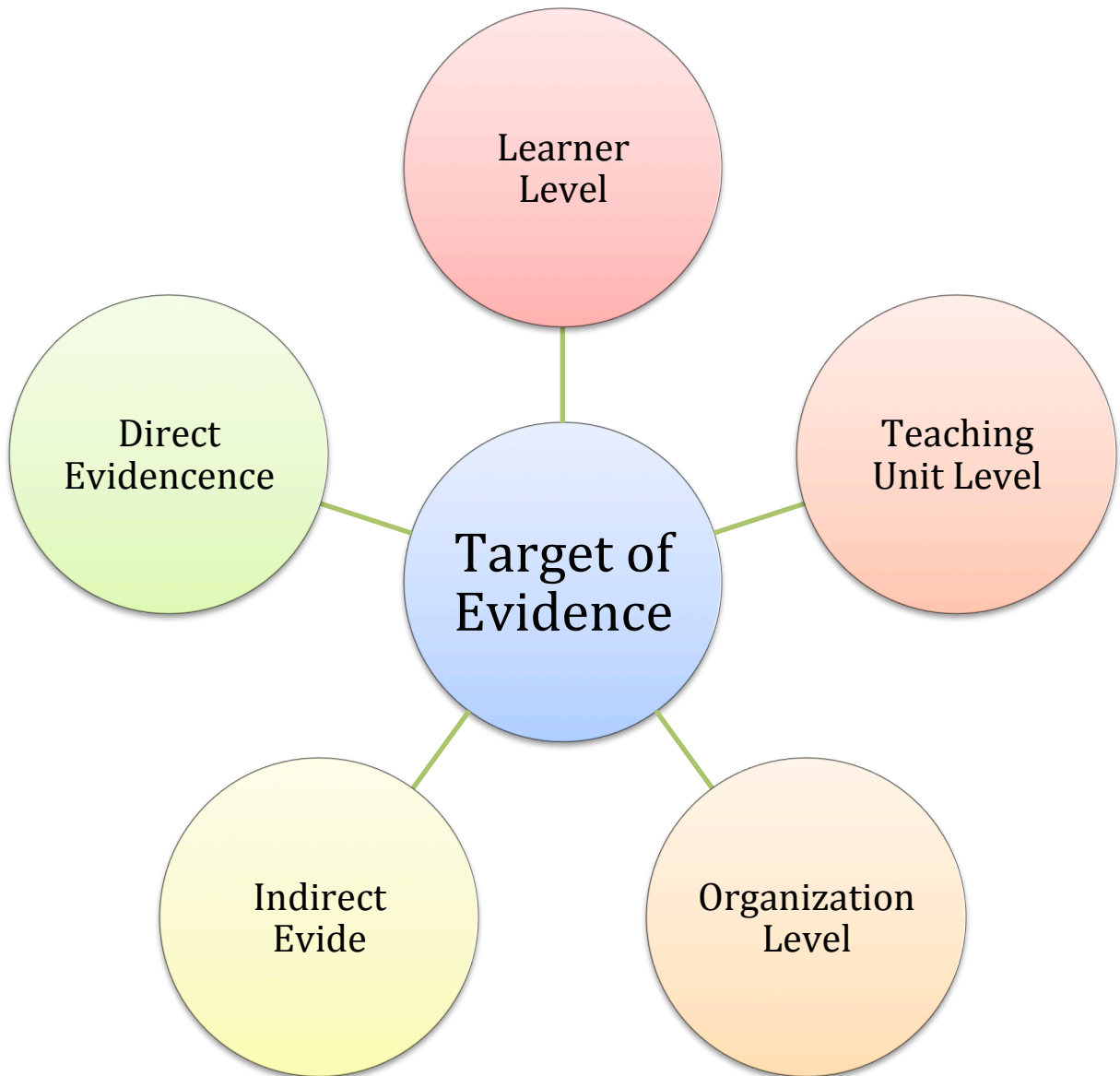
The Program Elements to Measure

The recommended measures in this book concentrate on the added value that teacher librarians bring to teaching and learning in the school. Every school should have a vision of the type of learner that the organization is trying to develop. This vision is usually embodied in a mission statement and in a programatic thrust that the school administrative staff is promoting. Such a school-wide target might be personalized learning, discovery learning, critical thinking, project-based learning, emphasis on the fine arts, or STEM. These emphasis areas change over time as different administrators take the helm and new emphasis targets come from state and federal mandates.

In the past, the school library professional has often created standards that often set forward a model of an organization that may include, but really stands apart from, the individual emphasis of a particular school. It was like a designer vision that should be plopped down into any learning environment and automatically appreciated for its genius.

The following model describes programic elements that a teacher librarian could adapt to the particular emphasis that a school might place on its various aspects. And, the entire book is divided into chapters based on these elements.

The LIIITE Model

The LIIITE Model was developed by David V. Loertscher and Fran Kompars as a result of a question by a group of school superintendents who were attending a workshop about the conversion of school libraries into library learning commons. Here was their question: "What is it that we should expect the teacher librarian to contribute to the teaching and learning in the school?"

The following is a large poster that was created by Mark Loertscher, followed by a rough draft that may be a bit easier to read:

The LIIITE Model of Teacher Librarians
What Today's Teacher Librarians Add to Cotaught Learning Experiences

L I I I T E!

LITERACIES	INFORMATION	INQUIRY & DISCOVERY	INTRUCTIONAL DESIGNS	TECHNOLOGY BOOSTS	EXPERTISE & LEADERSHIP
Cutting Edge Builds skills and enjoyment including wide reading, digital production and citizenship across many types of media and information formats and devices.	**Cutting Edge** Helps learners take command of connecting to high quality print and digital resources across the global network.	**Cutting Edge** Coteaches inquiry projects from beginning to end; facilitates self-directed learning, making, and creativity.	**Cutting Edge** Codesigns engaging learning experiences that combine content knowledge and learning how to learn skills.	**Cutting Edge** Facilitates the use of the best tech tools at the top of the SAMR model that boost learning, creativity, and efficiency.	**Cutting Edge** Contributes expertise to enhance teaching and learning through collaborative leadership.
+	+	+	+	+	+
Traditional Concentrates on building the love of reading and storytelling as the center of the library program	**Traditional** Directs patrons to information in books, magazines, and reference sources.	**Traditional** Concentrates teaching on finding, locating and evaluating information for teacher's assignments.	**Traditional** Direct teaching of library skills, research and the love of reading.	**Traditional** Encourages use of a wide variety of technologies.	**Traditional** Builds a traditional library program that serves patrons who request services and resources.

6 Reasons a Classroom Teacher Would "Hire" a Teacher Librarian to Partner With as the Library Learning Commons Program Pushes Toward Cutting Edge Practices

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The LIIITE Model of Teacher Librarians
What Today's Teacher Librarians Add to Cotaught Learning Experiences

Add

L I I I T E !

Literacies	Information	Inquiry & Discovery	Instructional Designs	Technology Boosts	Expertise & Leadership
Cutting Edge Builds skills and enjoyment including wide reading, digital production and citizenship across many types of media and information formats and devices.	**Cutting Edge** Helps learners take command of connecting to high quality print and digital resources across the global network.	**Cutting Edge** Coteaches inquiry projects from beginning to end; facilitates self-directed learning, making, and creativity.	**Cutting Edge** Codesigns engaging learning experiences that combine content knowledge and learning how to learn skills.	**Cutting Edge** Facilitates the use of the best tech tools at the top of the SAMR model that boost learning, creativity, and efficiency.	**Cutting Edge** Contributes expertise to enhance teaching and learning through collaborative leadership.
+	+	+	+	+	+
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Six Reasons a Classroom Teacher Would "Hire" a Teacher Librarian to Partner With as the Library Learning Commons Program Pushes Toward Cutting Edge Practices.

The LIIITE Model (pronounced as Light Model). Here are the six specific things teacher librarians can fold in or embed in a learning experience:

Under the Umbrella of Collaboration:
1. **L** for Literacy
2. **I** for Information
3. **I** for Inquiry and Discovery
4. **I** for Instructional Design
5. **T** for Technology
6. **E** for Expertise

Let's go deeper into specifics with examples of each of the six strategies that might make a major difference in a particular learning experience (CT = classroom teacher; TL = teacher librarian):

Literacy Cutting Edge: Builds skills and enjoyment including wide reading, digital production, and citizenship across many types of media and information formats and devices.

- Example: The TL and CT realize that the topic at hand will require the learners to build considerable background knowledge to be successful in the main project. They assemble a range of their favorite resources but also invite students to discover more. Instead of a "one-size fits all" textbook chapter, every student has a number of choices of background reading, viewing, and listening that they consume both as homework and in sharing the best of the best sessions with their peers. The adults recognize that the students have created substantive questions and are prepared to create their own projects. Perhaps we call this strategy "Personalized reading/viewing/listening" since we end up with many levels of difficulty, languages, and interest levels in the range of choices.

- Example: While reading, viewing, and listening to information resources, the CT and TL introduce the learners to mind mapping to help them draw pictures of the major ideas they are encountering. The students use their mind maps during small group discussions mentored by both adults. The adults note that pictures often help ELL students join in the conversation much more easily. A much higher number of learners exhibit deeper learning of complex texts and ideas.

Information Cutting Edge: Helps learners take command of connecting to high quality print and digital resources across the global network.

- Example: While doing an inquiry project, the TL and CT encourage the learners to get very picky about what they read/view as they are exploring many resources. For each source the students choose, they need to justify their selection and tell why they rejected other sources. When examining the bibliographies used, the CT and TL note an improvement beyond just Wikipedia and random selections. The

learners start to realize that there is a wide choice in what they select to read/view in addition to what the adults are suggesting.

- Example: As a part of the Big Think[1] activity after an inquiry project, the learners reflect that they are starting to make judgments about information quality, fake propaganda, and who is telling me what, for what reason, and for what gain. Those students who express failure and discouragement receive encouragement from their peers that the next time they do such a project, everyone will try to help everyone else be healthy skeptics.

Inquiry and Discovery Cutting Edge: Co-teachers inquiry projects from beginning to end; facilitate self-directed learning, making, and creativity.

- Example: During the introductory portion of a learning experience, the students get so interested in the relevance of the topic that they start suggesting what they would like to learn. The CT and TL give up their prescriptive plans and allow individuals and small groups to do what they want. They end up with self-directed projects that are much better than what they were going to prescribe. The difference in motivation, success, and progress in both topical knowledge and soft skill development are very apparent.

- Example: At school lunch, a CT and TL happen to sit together for the first time and the CT is telling the TL about this unit she is teaching and how boring it is to the students and all the behavior problems that are resulting. The TL says, "Suppose you bring the students into the library learning commons for this assignment? I'll come up with a couple of ideas over the weekend and let's eat lunch together on Monday and we will see what you think." On Monday, the TL presents two ideas and on Tuesday the students find themselves in a makerspace with a very different idea about what they can do to help them learn about the original assignment. The result is not spectacular, but certainly not any worse than what was going on before. The adults decide to continue the conversation.

Instructional Designs Cutting Edge: Codesigns engaging learning experiences that combine content knowledge and learning how to learn skills.

- Example: Tired of the old bird projects, where students chose a bird, did research, and made oral presentations, the CT and TL create an umbrella question about the various characteristics birds have. After initial research, learners are jigsawed to do a compare/contrast of characteristics. As merged groups they build a giant wall collage of various birds with similar characteristics and act as docents on parent's night. The adult mentors note the difference in deeper learning about individual birds, but also about birds in general.

- Example: The CT and TL have usually collaborated by taking turns: You teach this in the classroom and I'll teach this in the library learning commons. After reading an article about the difference between turn teaching and true partnering,

they decide to both be mentors with the students at every stage of the unit. Their first trial is a bit awkward, but they soon learn how to create a symphony together! The percentage of students who meet or exceed both adult's expectations increases dramatically.

Technology Boosts Cutting Edge: Codesigns engaging learning experiences that combine content knowledge and learning how to learn skills.

- Example: The CT and TL recently attended a workshop on using the Google Suite of tools with their classrooms. They are both intrigued with the idea of collaborative writing, thinking, designing, and editing that can be done in real time with groups of students. They decide to embed collaborative work into a unit they have done together previously to see if it makes a difference. Their first experience doesn't yield much, but after they practice a few times with the same class, they see major improvements in how the students work together and the sophistication of the learning when compared to what they had seen happen earlier.

- Example: When faced with a science project and the CT has a class of many ELL students, they decide to test out a couple of tech games designed to build vocabulary. On the first day for working on the games in the library learning commons, they split the class into two groups that will test the games. After 30 minutes of trial, they talk to the students and find out that one of the programs is fun and the other boring. The second day, they abandon the boring program and pair up students so that they both get to work on the better program. The students are so interested in the adults respecting their opinions that their motivational level goes up and so does their vocabulary.

- Example: Previously, the CT has been using Google Classroom to give and grade assignments. Likewise, the TL has created suggestions for research on the library website. In conversation, they find that they are dissatisfied with the research products that the students have created. To work more efficiently, the CT makes the TL a collaborative partner in Classroom for that assignment. The new collaborative space combines the ideas of the two professionals, and the students discover there is only one place to go for everything they need for their assignment. This simple change in the partnership makes a big difference in the outcome.

Expertise and Leadership Cutting Edge: Contributes expertise to enhance teaching and learning through collaborative leadership.

- Example: After a Big Think with their students about a current project, the CT and TL realize that they could improve as adult mentors and so they decide to attend an upcoming professional development seminar together to see if they can get some fresh ideas. They do and it does.

- Example: When confronted with a Biology project coming into the library learning commons, the TL recognizes that she knows very little about the topic of the unit. She asks the teacher for some recommendations and "does her homework" before the scheduled project. The CT notices the difference as they mentor the students through the unit.

Triangulation of Evidence-Based Practice

Triangulation of data means to collect data from various points of view or vantage points before making a decision and taking action. To understand what an elephant is, better to get a view from the front, from the rear, and from the side rather than any single picture. Like the points of a triangle, there ARE different vantage points from which the impact on learning (the center of the triangle) can be viewed or validated. The trend in state and federal governments is to ask educators to collect more quantitative (or scientific) data by using more rigorous research designs. Those designs often require experimental conditions difficult to create in local schools. To compensate, since learning and teaching are not exact sciences, the more types of data we collect, the closer our views of the elephant will move toward validity. At the same time, local communities will need to learn to accept a wide variety of indicators of success rather than exclusively seeking test score evidence.
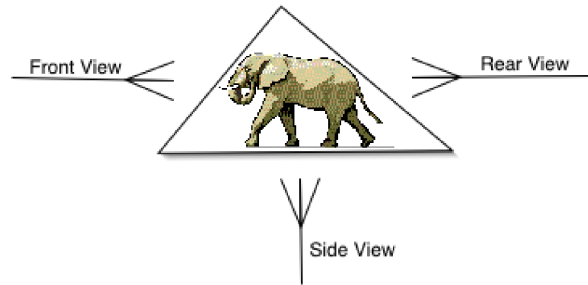
Teacher librarians need to collect various evidences as a part of their effort to document what they contribute, what they do, and what they need to do next. Three major types of evidence suggested here could be collected in any school to provide a more holistic view of the library learning commons programs:

Data from the learner level. Data at the learner level such as achievement test scores are currently at center stage in the United States. Standardized test scores in almost every state have taken on great significance. There are, however, many other measures of how well an individual might be doing: portfolios, attitude, measures of performance, and other techniques used by both adults and learners to judge individual attainment.

Data from the teaching unit level. Data can be collected about the various learning experiences that are designed by adults to interact with LLC materials and technology. That is, we begin examining the impact of our resources on teaching and learning. "Because we have this, we did that." Data collected from the collaborative activities of teachers and LMC staff are quite powerful in describing impact. For example, the Lance studies did note that achievement was affected as the amount of collaboration between teacher and LLS staff increased.[1]

Data from the organization level. Common measures at the organizational perspective are size of facilities, the equipment available, the amount of funding provided, and the size of collections or staff. All these factors might be termed "inputs" or the resources we have to make a difference.

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[1] See Lance, Keith Curry and David V. Loertscher. *Powering Achievement*. 2nd edition. Hi Willow Research & Publishing, 2003.

They are often reported to accrediting agencies and in local reports to administrators and boards. The Lance studies of LMC impact looked at many inputs as they affect the "output" – reading scores.[2]

Add a Second Dimension: Direct and Indirect Evidence

To the levels of learner, teaching unit, and organization where evidence is being collected, the second dimension is the type of evidence to be collected. The matrix below introduces the idea that both direct and indirect evidence should be collected.

Direct measures of evidence would be those so close to actual learning that confidence in an impact could be inferred. We have no thermometers to stick in a learner's mouth to gauge actual learning, but direct measures might challenge doubters to prove no impact.

Indirect measures provide evidence that actions set the stage for, provide an environment for, give support to, enable, help, give encouragement to, mark progress toward, make change in direct measures over time the probable stimulus.

	Learner Level	Teaching Unit Level	Organization Level
Direct Measures	Assessments of various types given to learners showing impact on learning	Measurements of impact on teaching quality and classes engaged in LMC learning units	Behaviors of administrators and data that show an impact of the LMC program on the school as a whole
Indirect Measures	Environmental factors that support the individual learner	Support of teachers enabling successful use of the LMC program	Policies and support at the school and district level that enable a quality LMC program

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[2] *Ibid.*

Building an Evidence-Based Practice Plan

Use this form to plan data collection in one of the four program areas of the LLC: Collaboration, Reading, Information Literacy, and Technology. One might try to collect something in each area or zero in on a single area for a period of time. Every box in the template need not have something in it. Neither should all data collected be in a single box. Data from several levels and both dimensions would be ideal.

Goal:

	Learner Level	**Teaching Unit Level**	**Organization Level**
Direct Measures*			
Indirect Measures* **			

*Direct measures would be those so close to actual learning that confidence in an impact could be inferred. We have no thermometers to stick in a learner's mouth to gauge actual learning, but direct measures might challenge doubters to prove no impact.
** Indirect measures provide evidence that actions set the stage for, provide an environment for, give support to, enable, help, give encouragement to, mark progress toward, make change in direct measures over time the probable stimulus.

The Challenge: To use measures from all levels to triangulate the view of impact.

In this chapter, we introduced the teacher librarian to the major concept levels and types of micro documentation of program elements and the embedding of program elements into actual learning experiences using the LIIITE Model.

In the following chapters, we will look in depth at the entire scope of impact by first introducing the umbrella concept of collaboration under which each of the six elements of the LIIITE Model will fit. The challenge of course is to build a repertoire of these measures so that during the planning of a learning experience, the teacher librarian has a wide variety of strategies to imbed into a teacher's learning experience. Not only will the strategy or strategies be planned that would boost the classroom teacher's content objectives, but at the same time we will plan to micro document the embedded pieces contributed by the teacher librarian. With a bit of practice, both the teacher librarian and the classroom teacher begin to realize that the expertise of content and embedded process elements merge so that both partners can mentor and assess both content mastery as well as the process skills.

3

Co-teaching

The Umbrella Concept of the Library Learning Commons

State of the Art

Co-teaching is defined as the teaming of teachers and teacher librarians to create exciting learning experiences that take advantage of the information-rich and technology-rich environment of the school. As partners, the classroom teacher the teacher librarian develop goals and objectives, teach together, and assess the learning together.

No other concept of the role of the library learning commons program is more central or more vital to its success. Research of library media programs[1] draws the conclusion that collaborative planning is a strong link to the achievement of learners. Collaborative planning turns the LLC program from passive to active in the curriculum of the school. Judging by the amount of money required to build and maintain a viable LLC program, a passive program is simply unacceptable. There are too many voices requesting funding to support any program not carrying its weight in meeting the requirements of professional or mandated standards.

Professionals who collaborate to build rich learning experiences find great satisfaction in knowing they make a difference. Their jobs are exciting, extremely busy, rewarding, and empowering. And successful LLC professionals are recognized by their peers as being on the leadership team.

Co-teaching has been discussed in the professional literature for many years. It is also the area of the library learning commons program that many find the most difficult to implement. Yet collaboration is a popular topic in the educational literature. There, the emphasis is on teachers collaborating with one another on grade level teams or departments. If teachers follow that advice, then they have the skills to accept us as members of their collaborative teams.

Do teachers and administrators receive training that the LLC is a part of a successful educational program? No. Ross J. Todd, in a message to school librarians at IASL a few years ago, said to us: "Get over it! Move on. Accept the fact that you have to sell yourself by your example and your performance. Many have. Why not you? You were probably an excellent teacher in the classroom in a past life. You understand both sides of the fence. You can do it. And, to hold your job, you must."

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[1] Lance, Keith and David V. Loertscher. *Powering Achievement*. 2nd ed. Salt Lake City, UT: Hi Willow Research & Publishing, 2002.

Central Measures to Consider

(Collab1) Measure the Percent of Learners Who Meet or Exceed Both Classroom Teacher's and Teacher Librarian's Expectations

Over the years since the Keith Curry Lance and Ross J. Todd studies connecting school librarians to academic achievement, the problem has been that the reader of those studies sees correlation data at the state level but not at the school building level. Thus, it is difficult to ask, "What difference does the teacher librarian at my school make to the teaching and learning here?

In addition, some considerable thinking has gone into the creation of a curriculum of library skills or information literacy that could be taught systematically across the grade levels. If such a program as been shown to make any difference in test scores at the building level or at the learner level, the author is unaware of such evidence. The question then becomes, "What difference does just in time embedding of an inquiry skill, a tech tool, wide reading, or a combined instructional design have on the amount learned in a particular learning experience?"

What difference would it make in the study of state history to read widely on the topic rather than just a chapter in the textbook? What difference would it make in the study of a controversial topic if we were to help the learner find authoritative information on both sides of an argument? What difference would it make if the oral presentations of reports bird by bird were placed by a giant compare/contrast of bird characteristics by the class built upon the individual research? Suppose we insert a Google doc tech tool into the identification of a particular ecosystem where multiple researchers are contributing information simultaneously? And, finally, what would happen if the teacher librarian jointly planned, taught, and assessed a learning experience together from beginning to end?

A simple measure is recommended here as a method of micro documentation of impact when two adults collaborate in the environment of the library learning commons where there is a rich information environment and robust technology networks.

If, during the planning of a co-taught learning experience, each adult contributes a plan to assess learning, they would want to judge whether wide reading had indeed made a difference in topical knowledge. Did the tech tool deliver a way to push deeper learning successfully? Did higher quality information make a difference in the amount learned and have an effect on the products created by the learners? What advantages accrue because there were two adults to mentor rather than just one?

The measure proposed here is a very simple one:
- During the objectives planning, set the bar of what both adults expect of a student meeting the objectives.

- Design a way that both partners will, through formative and summative assessments, judge whether the learner meets or exceeds the expectations.
- Teach the experience together
- Perform assessments as designed.
- Tally the results:
    - How many learners were in this experience?
    - How many of these learners met or exceeded both our expectations?
    - Compute the percentage of those who met or exceeded our expectations.
- Make a judgment based on past research: If the percent is at or above 70%, you are in the success range of previous research. If the partners did not achieve this result, discuss ways you could increase the success rate the next time the same group did a similar learning experience.
- Conduct a Big Think metacognitive look back with the students and the mentors together. Ask what we learned, what I learned, how we learned, how I learned, and how we can all do better the next time we have a learning experience like this one. Such an activity with the learners will provide more evidence about the percentage of learners who met or exceeded the mentor's expectations. It will also lay the groundwork for the next collaborative learning experience to be more sophisticated than the previous one.
- Preserve and report your documentation of this experience together on the museum tab of your virtual learning commons (library website).
- Repeat this documentary evidence on other learning experiences to see if a pattern emerges. Does the success rate form a pattern across learning experiences, grade levels, and the faculty?

Co-taught learning experiences may not always succeed. Failure happened in the previous research. In one school, there were so many disruptions like fire drills, school events, and the like, that the partners just gave up the entire unit and moved on. In another case, a high school teacher expected students to write a college level term paper as their first research expectation. Those expectations were too high.

At the writing of this book, a major research project is underway to replicate the previous research study where this measurement was used. You can find the website inviting participation, providing the data collection questionnaire and the results as they are published. The website is at: https://tinyurl.com/yd5j6uvn

This measure is principally at the **teaching unit level** but could easily be examined at the **learner level,** and if collected across the school, it is at the **organization leve**l. It is also **direct evidence** when both partners use solid assessment measures.

(Collab2) **Measure the Time Spent Collaborating**

Definition of time spent. Time planning, implementing, assessing learning, and reflecting used to build a collaborative learning experience with a teacher, a group of

teachers, or on school/district planning committees (such as curriculum committees) should be tallied as time spent collaborating.

Goal: When the time spent on collaboration meets or exceeds 50% of a normal day's work schedule, the teacher librarian can be quite confident that an impact is being made.

What about teacher librarians who serve several schools? You should document co-teaching and do it in at least one school at least once a semester to showcase to the faculty and administration what it is and its contribution. Another way is to create a virtual Knowledge Building Center website where two teachers from different schools are teaching the same topic or when they are collaborating on a project across schools. The author recommends a Google Site for the KBC website.

What about those who are alone and have no support staff? Your time spent collaborating will be lower than those who have support staff. This needs to be documented by comparison with another school, district, etc. However, if your time collaborating falls too far below the 50% level, the difference between you and a support person will be clouded. If things don't improve, a support person could replace you and no one would notice.

What about those who have scheduled classes? Scheduled class time should not be counted as collaboration time unless the teacher remains in the LLC with the class and you both are working on a planned learning experience together. All teachers should know that collaborative experience always take precedence over babysitting. If a group is in the LLC for collaboration, the scheduled group will sit in a corner and do SSR while the library media specialist works with the other group. For those in the SSR group, you will be raising their reading scores. Another approach is to have those scheduled in the library consider that time as independent or small group "making" time as they work in the library learning commons makerspace as independently as possible. This allows the scheduled group to work in one part of the LLC while another group is being co-taught.

What about those who have support staff? Your time collaborating should rise much higher than the 50% level and that should be reported regularly. If it is below 50%, there is a major problem to be solved.

What about turn teaching rather than collaboration? When the library media specialist teaches an information literacy or library skills course in the library and finds out in advance what the teacher is covering the classroom and makes some attempt to "correlate" what is being done, this author would recommend that <u>not</u> be counted as collaboration. Since both adults are teaching alone, the success rate experienced during true collaboration cannot be counted on as raising student performance.

Time spent on collaboration when counted as defined above is a **direct measure** at the teaching unit level, and when added across experiences becomes a **direct measure** at the **organization level.** It is an **indirect measure** since time spent does not always translate into improved learning.

Collaboration Time Collectors

Use a daily calendar method

At the end of the day or at opportune moments during the day, record the time you spent on collaboration activities. A simple total for the day is better than nothing. This can be tallied for the week, the month, and the year, and the percent of time spent computed. A spreadsheet is a very useful tool for this practice.

Better yet is time spent with individual teachers so that tallies by teacher, department, and grade levels can be computed and reported. The collaboration log discussed below is the easiest method.

Use a collaboration log

The (Collab2) measure – the collaboration log – records collaboration units on a regular basis and includes a suggestion that time spent collaborating should be recorded and tallied on the table of contents or summary page. These data can be extracted for a time analysis and reported by teacher, department, and grade levels on a weekly, monthly, and yearly basis.

Use computerized tracking software

At the end of each collaborative experience with a teacher, use computer software to track what was taught to whom, when, what content standards were achieved, what information literacy skills were mastered, and any other useful information such as teacher and grade level. For example, a Google Sheet can easily track the information above and can contain a link to the Knowledge Building Center that was used by the teachers and students in a particular learning experience.

Try dividing and analyzing collaboration time spent during the day and as homework at night.

Teachers all have homework at night keeping up with their job. You might separate and report the block of time during the school day that you spend collaborating, and the time spent on your own doing it. Follow the same reporting methods a teacher who is a union member might do or what the master contract for the district says about work time outside of the school day.

(Collab3) Chart the Move From "Bird Units" to Quality Learning Experiences in the LLC (Teaching Unit Level)

While more measures are recommended in the chapter about instructional designs, we recommend this measure here. "Bird Units," or low-level learning experiences in the

LLC, take a number of forms: the completion of worksheets by students collecting facts on birds, states, old dead men, etc. Such activities teach kids to transpose facts from one medium to another. Whether learning takes place is highly questionable.

Fat bird units are a minor improvement – where students do a report or a research paper on a topic of choice. The learner will know a little or a lot more about one topic, but little to fill the requirement of the state standard that usually requires a much more global understanding. Requiring oral reports from individuals or small groups about their reports is a passive and uninteresting passage of time for the class as a whole and guarantees boredom.

This author's campaign to turn bird units into cut, clip, and THINK activities is well documented in the literature.[2] This simply calls for a ban on all lower-level learning activities in the LLC and always allowing collaborative high-level learning experiences to have first priority of the collection, space, time in the LLC, and technology assists. The defense of this is, of course, that the LLC is interested only in activities that raise achievement (this does not mean that fun is excluded).

Randy Sheets, a library media teacher in Garden Grove, California, once announced to his faculty that if any one of them would spend the time planning with him, their student's scores would go up. Some did and benefited. Tough luck for those who went it alone for whatever reason.

Most faculties have to be convinced that the LLC program actually makes a difference in achievement. Why? A myriad of reasons. That is why most teacher librarians must document the transformation of each and every learning experience and let it be known.

If documented using the definition on the next page, then a transformed learning experience is **direct evidence** at the **teaching unit level** and when added up across teachers, departments, and grade levels constitutes powerful **direct evidence** at the **organization level**.

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[2] Two publications will help create high level learning experiences: Loertscher, David V. and Carol Koechlin. *Beyond Bird Units* and by the same authors: *The Big Think*. Both can be purchased from LMCSource.com

Beyond the Bird Units
Documentation of Quality Learning Experiences

Definition: To count as <u>one</u> enhanced collaborative experience, both the teacher and the library media specialist must agree that this experience was superior to a previous experience in the classroom or LLC. Students learned more and we have and could present that evidence.

First victory to report and showcase:

That's One!

Then:

That's Two!

Then:

That's Three!

Then:

I ask for more staff, get it, and then say:

That's Ten!

That's Fifteen…

Secret: There is a direct correlation between the size of staff and the number of enhanced learning experiences that can be handled. We do not have any national statistics or track records to report on this aspect of the LLC program. We need it desperately.

(Collab4) **Gauge the Dispersion of Collaboration Across the Faculty (Organization Level; Indirect)**

In the previous measure, we inspected the "damage" when all the guns of the LLC program and its technology were targeted at a single learning experience. In this measure, the teacher librarian documents the spread of collaboration through a faculty.

Such a measure demonstrates an active rather than passive library learning commons program. It makes the assumption that collaboration produces superior learning experiences (not always the case, but highly likely).

In the author's experience across the years, administrators who make a friendly compact or mutual goal with the teacher librarian – a private challenge to see how far dispersion can be pushed – these are the schools in which the library learning commons program makes the most difference.

The technique is known as the collaboration log described below, and its critical summary page showing dispersion is given on the next page.

Collaboration logs are **direct measures** at the **teaching unit level**. The record of dispersion is a **direct measure** at the **organization level. It is also an indirect measure.**

Idea: Create a Collaboration Log.

Who: The teacher librarian and any other participating specialist and classroom teacher working as a team.

Activity: Each time there is a major collaborative learning experience jointly planned, executed, and evaluated by the teacher librarian and classroom teachers, do the following:

Organize collaborative unit planning documents usually in digital form as Knowledge Building Centers or units in Google Classroom or other content management system.

Principal's Activity or report made by the teacher librarian: Make a summary report that looks for patterns:

> Who is being served?
> Which grade levels?
> Which departments?
> Which curricular subjects?
> Who is not being served?

Sample Collaboration Log Summary Page

During the school year, the teachers and the teacher librarian and any other participating specialists agree that the following units were successful collaborations, i.e., the learning was enhanced because the several partners exploited the resources and technology of the LLC and/or computer lab.

	TL/CT Time	#Students
Social Studies		
Our Local Elections – Grade 6 (Smith)	*2.6 hours*	*24*
Family Trees – Grades 3 and 4 (Albright and Faire)	*3.6 hours*	*45*
Reading		
Newbery Novel Unit – Grades 5 and 6 (Crane & Finch)	*1.5 hours*	*47*
Science		
Environment of the School Grounds – entire school (Principal, TL and Dwight, leaders)	*15 hours*	*465*
Simple Machines – Grade 3 (Truett)	*1.4 hours*	*27*
Nutrition – Grades 5 and 6 (Handford and Zigler)	*2.8 hours*	*48*
Integrated Units		
Local Environmental Hazards – Social Studies and Science. Grade 4 (Todd and Lark)	*4.5 hours*	*43*
Labor Movements – SS and Art, Grade 6 (Jones and Gregg)	*.7 hours*	*49*
Totals	*35.1 hours*	*748*

Ideas:

Create a summary chart similar to the one above that details collaborative units taught. This becomes the first page in the collaboration log.

Create a graphic that summarizes the above list for use in the report.

Enlarge the chart to poster size or create a presentation when reporting collaborative efforts to the faculty, administration, and the community.

Note to the teacher librarian: How many collaborative activities were there? What is the dispersal of collaboration among the faculty, grade levels, and subjects taught? How could I as the instructional leader encourage more and better collaboration? Which of the collaborative activities deserve recognition from the community? How would I assess the effectiveness of increased student learning?

(Collab5) **Gauge the Sophistication Level of Learning Experiences Across Time (Organization Level; Teaching Unit Level)**

When the adult mentors conduct a Big Think (metacognitive) activity after each learning experience, the sophistication level of the collaborations should rise as the school year progresses. This might happen with a single teacher with whom the teacher librarian does several or more units. Or, it might happen when the same group of students has different teachers such as a language arts teacher, a science teacher, or a math teacher almost every day. It might also happen when a grade level team or a departmental team in high school join hands with the teacher librarian and other specialists to adopt certain learning experiences that invite co-teaching and the resources of the library learning commons.

Teacher librarians often begin their efforts at collaboration with a single friendly teacher who is willing to take a risk. Using one successful experience, they learn to build on that success, relying on early adopters, then mainstream faculty, and finally the more reluctant adopters. But what is important here is what happens when a group of learners has the opportunity to work with collaborative mentors repeatedly across the school year. For example, at the beginning of the year, the teacher librarian embeds wide reading into Mrs. Smith's unit on animals. A month or so later, during a science unit with Mrs. Smith's class, a bit higher level reading resources are used, and during a third unit in the spring, even higher reading level resources are available and encouraged. The same might happen with technology tools across the year – simple at first, then more and more sophisticated as students gain experience in using tools and networks more efficiently.

Here are a few examples that might be documented and shared. Add to this list.

- Show Venn diagrams that compare multiple ideas using Google Draw over three learning experiences. Show the sophistication not only in how the Drawing is used, but the higher sophistication in the comparison of ideas.
- From the first to the third research product, compare the use of quality information sources across the products.
- Report the comparison of cooperative work groups over three learning experiences where the group behavior, cooperation, and products show higher levels of true cooperation.
- Investigate the behavior of students across projects from "night before" products to longer time frame and steady creation of higher quality products with much more sophistication and deeper content.

During Big Think activities, have the learners themselves not only realize how well they did this time, but also ask them to help set a higher bar for the next time they do this type of learning experience. Remind them at the beginning of the new experience of the challenge of higher expectations.

The measurement of sophistication begins at the **teaching unit level**, but as patterns across the faculty begin to emerge, the report shows cultural change at the **organization level.**

(Collab6) Joint Assessment During Collaboration (Teaching Unit Level)

How do you know whether a collaboratively planned learning experience is superior to one done in the classroom alone? The answer is through the assessment activity, an important strategy of collaboration. If we wish to know what a learner knows and is able to do, then we must plan to assess the important qualities we expect.

Traditionally, for a collaborative unit, the teacher librarian furnished materials and technology but left learning goals and the assessment of learning to the teacher. In an assessment-based world, that role is no longer enough since it provides no evidence that the library learning commons program made any difference in learning.

Remember, both students and teachers value what is assessed. "If nobody cares, then why bother to exert myself?" This is true unless I am a motivated and interested life-long learner.

Practically, the classroom teacher might lead on some assessments, the teacher librarian on others, and both working a few together. As experience at joint assessment happens, the adults, and certainly the students, realize that the quality of their work and behavior is happening jointly.

Rubrics or other assessments should contain any or several of the following concerns:

> Content knowledge
> The quality of information consulted and used
> Inquiry skills mastered
> Creativity, critical thinking, or problem solving
> The amount read
> The contribution of Technology to learning
> The cooperation group work skills or other soft skills exhibited.

Assessment practices certainly evolve over time and all of the professional teachers and professional teacher librarians should take advantage of various professional development opportunities, experiments, and other opportunities to improve over time. When new assessment techniques are a concern of the entire school, perhaps a collaborative teaching experience is a much safer alternative than trying to go it alone.

The Joint Assessment / Rubric

During the unit planning process, the teacher/LMS team first identifies what state standards are to be achieved. Then together they create a rubric that covers the teacher's concerns and adds the teacher librarian's concerns for information literacy, reading, and technology as illustrated below:

	Rubrics List
Content items based on state standards (teacher as lead)	1. ... 2. ...
Information literacy items (teacher librarian as lead)	3. ... 4. ... 5. ...
Other items recommended by the teacher librarian: Reading and/or technology.	6. ...
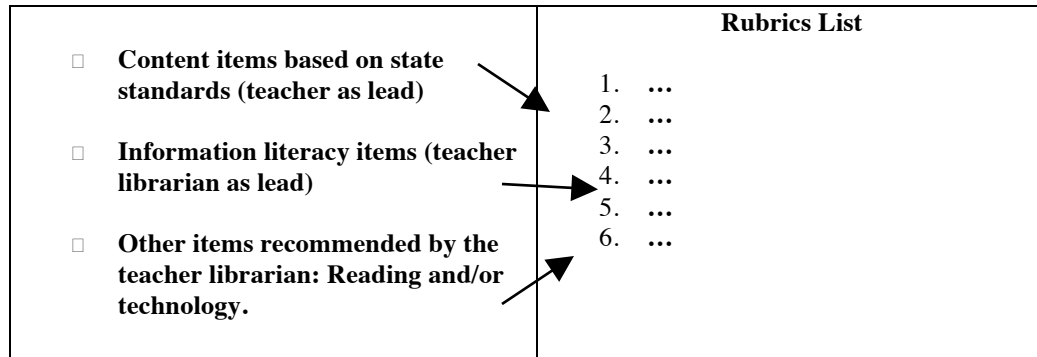
For students, the team may wish to create a self-assessment rubric to be completed by students or learning groups. This rubric can be the same as the above rubric or adapted.

(Collab7) **Tell Stories!**

Stories of a powerful learning experience is a great way to spread the word about the positive impact that partnered learning experiences make. Here are a few pointers:

- Have the adult mentors create a short YouTube video for your LLC's YouTube channel. Do keep it short: 3-5 min.
- Be sure to include adults beyond the classroom teacher and the teacher librarian who helped: administrators, other specialists in the school, experts, parents, etc.
- Have the participating students create their own video accounts of the experience. Post these to the YouTube channel as well.
- Stories about how the resources of the LLC helped enhance what was going on in the classroom are important.
- Be sure that the two main mentors appear together as they do their magic.
- Concentrate on the depth of what the students are learning.
- Show ways that both information and technology boosted the teaching and learning.
- Include learners of all abilities and cultures. Turning a struggling learner around is always powerful, but don't forget the "average" learner and the genius of the top students as well.
- Feature new videos regularly on the homepage of your Virtual Learning Commons. And have a museum full of them.
- Your student tech team can become experts at creating the video stories.

Other Collaboration Measures to Collect and Report at the Learner Level

Assessment

(Collab8) Standardized assessment and collaboration (Learner Level)

Do an analysis of the standardized tests given in your school and district to see what information literacy skills, reading, and technology is assessed. This might be a cooperative task of a committee of library media specialists at the district or even state level. Base many of the LMC goals for collaboration on this information since achievement will be gauged by these tests.

Analyze enough individual learner's scores until you have a reasonable idea about why students fail or achieve based on information literacy skills, how proficient they are at reading, and how well they use technology as a learning tool. Some years ago, a group of teacher librarians were examining the Texas state test at various grade levels. At one grade level, almost 50% of the items were process items giving support to the emphasis of information literacy at that level. At another grade level, content items predominated indicating that lots of reading would help kids build background knowledge about a variety of subjects. Such information is extremely valuable when teachers and teacher librarians consider state standards and the assessments that measure them during the collaborative planning of units.

Provide evidence that the collaborating partners have taken assessments and standards into consideration as they design and carry out learning experiences. For example, last year, after analyzing a number of individuals, we noticed these problems… This year, after an analysis of state standards and the probable assessment, the third grade teacher and I designed our collaboration with X factors. We then looked at individual scores again for a comparison of last year's third graders with this year's third graders. We found that we had chosen wisely for our yearlong collaborative push to integrate (lots of reading, better use of technology, or focused information literacy skills).

(Collab9) Local assessment and collaboration (Learner Level)

Beyond the required tests, both teachers and teacher librarians are looking for a wide range of factors that help students be successful in school. Rubrics or other assessments are designed to provide feedback about learner progress. What do we want Susan to know and be able to do? And, will our assessment of the LLC-based unit tell us how she is doing?

As a unit draws to a close, plan to examine the performance of a few individuals as representative types: a learner who speaks and reads English poorly, a gifted student, a student with disabilities, an average student. What can we do differently for Susan and well as other students like her?

Report the fact that you do some individual student analysis on a regular basis to guide your collaboration with a particular faculty member.

(Collab10) Memorable learning experiences (Learner Level)

Ask learners to rate learning experiences. They exhibit many signs during a learning experience that they are engaged, learning a great deal, having fun, and going beyond the minimum assignments. Some years ago, Cathy Marriott in the video "We Are Information Literate!"[3] compared student engagement skills in the "pick a pet" project collaboratively planned and a "normal" unit. Her figures reported 255% more homework time, and like percentages for before and after schoolwork plus all the participation time. Such a report must have impressed someone since it, along with other like messages, got a bond issue passed. Students in her video being interviewed as fifth graders could easily recall their kindergarten research and could tell all kinds of details about it. In short, it was a memorable learning experience. Engaged students read more, are motivated, love the challenge, and expend much effort. We wish we had a "memorable measuring thermometer." We might measure what Cathy measured. We might also just ask kids to rate at the semester memorable units – ones they like the best or ones they feel they learned the most from. We could also ask them to rate units on a boredom scale if we could stomach the results. Kids know when they have been engaged and challenged. Perhaps we just need to tap into their network.

(Collab11) Deep learning vs. surface learning (Learner Level)

Gauge deep learning within a content area. Jay Leno had great fun interviewing people on the street about the most mundane of facts such as "Who is the current president of the U.S.?" and broadcasting only the stupid answers he receives. His point was, like E.D. Hirsh a number of years ago, that Americans have very poor surface knowledge or common knowledge about most subjects. Hirsh published the series "What Every ___ Grader Needs to Know" and made a fortune touting surface learning which is, of course, what textbooks are full of and what many standardized tests measure. You memorize your states and capitals, math facts, the first ten amendments to the Constitution…

Critics point out that in-depth knowledge such as a kid mesmerized by dinosaurs, video games, or pop culture is responsible for most of the world's progress. It's the expert mind that gets us ahead in most instances whether in science, law, history, or medicine. Collaboration provides students a break from constant sponge memorization to fill those brain cells with deep understanding. Library learning commons are perfect places to build such depth. LLCs can be used to gather the facts to be memorized, but on-beyond-the-textbook is our specialty. Fortunately, the emphasis of some major tests has changed in an attempt to measure critical thinking or deeper understanding. It is worth

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[3] Marriott, Cathy. *We are Information Literate! The Video*. Hi Willow Research and Publishing, 2003.

studying whatever tests arrive at the school in order to determine if anything we want to offer from the LLC will make a difference.

How do we know when a student has become a mini-expert? We rely on many assessments: debates, panel discussions, written essay tests, lengthy term papers. No Jeopardy games here – no true/false or multiple choice. We want evidence beyond the surface.

During a collaborative unit, design assessments that will test both surface learning and deep understanding. Activities that promote lots of reading, investigating, data handling, problem solving, graphing, and other information transformation will produce more thinking and thus more deep understanding. The assessment then rewards that effort and we individually praise Joe or Juan or Anita for obvious expertise. How many individuals within a class could we label as deep learners? What activities stimulate such an effect on a higher percentage of the class? Relevance? Real problems? Issues?

The problem with deep learning is time. Teachers feel that if they come to the LLC, deep learning will occur but what about the other "stuff" they have to cover? A balance of well-assessed surface and deep learning program over time will teach us the appropriate mix.

Possible Collaboration Measures to Collect and Report at the Teaching Unit Level

The use of collaboration logs, the measurement of time spent collaborating, and the move from "bird units" to higher quality learning experiences are all measures at the teaching unit level (see Collab1–3). Thus, this section is rather brief.

> **(Collab12) Teacher-pupil ratio (Teaching Unit Level)**
> Show the difference in the teacher-pupil ratio when collaboration occurs. Did you know that in the Lance studies, the impact of the LLC shows up stronger than teacher-pupil ratio? Many groups consider teacher-pupil ratio to be a key element because of all the extra time and attention that can be given to individual learners. It is strange, then, when the teacher wants to leave during a LLC activity. The teacher-pupil ratio is cut in half when both partners are in the harness. This is one carrot to dangle in front of a faculty who is struggling to raise scores – give me your tired and poor units, those struggling learning experience yearning to breathe free – and together we will transform them and see that every learner succeeds. Along with other collaboration data, this is a key element to show when linked to improved student performance for a learning experience.

Possible Collaboration Measures to Collect and Report at the Organization Level

How the organization encourages a collaborative atmosphere and makes policy and pushes strategies to see that it happens is critical. Teacher librarians around the country blame organizational restrictions on the amount and the quality of collaboration. Who is at fault for such limitations is not always clear, but it seems a barrier that many struggle to cross.

As this author talks to administrator groups, the problem seems to be ignorance as much as anything. Many administrators do not know what they don't know. It is not that they are unwilling or threatening, it is that their experience level gives them little to go on. That is why I keep encouraging teacher librarians to set up showcase collaborations to demonstrate to administrators so they can get a glimpse of what we are talking about. It seems to require "show me" rather than "tell me."

An early Joyce Valenza[4] technique is as good as any. Overhearing teachers complain about the amount of plagiarism going on, Joyce selects a history teacher and collaborates with him to teach information literacy in his major research project. When the project is a spectacular success, she and the teacher showcase it to the principal. The principal is so enthusiastic that an information literacy action plan is presented and accepted by the leadership team and then announced to the school. Teachers know that their performance evaluation of the year will contain an item linked to their implementation. Joyce is off and running. Running!

> **(Collab13) Administrators and collaboration (Organization Level)**
> Document the administration's support of collaborative planning by actions as well as word. First, document understanding, then enthusiasm and actions. A 30 second brag about a principal who "gets it" is an important part of any presentation to a board or parent group. And if the principal never get it and can't be taught, there are only two alternatives: move to a school with an understanding principal or get the principal fired.

> **(Collab14) Staff size and collaboration (Organization Level)**
> Document the size and expertise of the LMC staff as collaboration builds, stays steady, or declines. Let's face it – as long as logic is on the table, the size of the LLC staff can be justified based on the amount of collaborative planning with its attendant impact. To become indispensable is critical. To produce a slate of elevated successful learning experiences is an enviable track record. The size of the LLC staff is predictive of the amount of collaboration possible. Chart that amount against staffing over time. Be prepared to significantly increase the amount of collaboration should staffing increase. Do it and report it. If some other program has suffered because staff was diverted to the LLC, evidence of impact

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[4] As reported by Joyce and her principal at the ISTE conference in Seattle, Spring, 2003.

will be critical. Numbers of collaborations and the dispersal of those collaborations throughout the faculty should help.

(Collab15) Professional development and collaboration (Organization Level)
Document the number and extent of professional development sessions for the faculty on the topic of collaborative planning with the LMC program. Just assume that no teacher receives training in how to use a LMC during their pre-professional education. If they do, don't faint. With the advance of theory in our field about collaboration, information literacy, and technology, we have had difficulty as a group keeping up, let alone expecting the school community to come along with us. We will have to teach behaviors we expect to happen. It could be with a single person, a small group or the faculty as a whole.

(Collab16) School schedules and collaboration (Organization Level)
Document the scheduling atmosphere of the school as it either promotes or discourages collaborative planning. Those affected most by school scheduling seem to be the elementary school library media specialists, many of whom are locked into planning periods. Breaking that organizational pattern requires creativity, administrative support, and the ability of the LLC staff to implement a rich collaborative program. It is the chicken and the egg. You can't get support without a collaboration track record and you can't get a track record without support. All teacher librarians can showcase one, two, three, or more learning experiences that demonstrate what collaborative planning is all about. Showcase those, report them, have teachers testify about them. It provides the ammunition to make organizational change. If your job, however, exists because of planning periods, have students assigned to the LLC do LSSR (library sustained silent reading) or making in the LLC makerspace while you are working collaboratively with another teacher in another part of the LLC. If there is no way to demonstrate collaborative planning, change schools.

In Summary: This chapter has provided a list of factors dealing with collaboration that would be candidates for measurement. This list was followed by a variety of possible measures that might be done at the learner level, the teaching unit level, and the organization level.

The task of the teacher librarian is to decide which aspects of the current collaboration program could be measured, what program goals should be instituted and measured, and what combination of measures can be integrated into daily practice. The following evidence plan worksheet might help in making both measurement decisions and also might shape changes in the LLC program.

The worksheet is followed by a sample worksheet where a library media specialist has decided to measure a collaborative goal of the LLC program.

Collaboration Evidence Plan Template

Detail in the appropriate box possible measures to be used in your collaboration program to measure its impact on achievement.

Goal:

	Learner Level	**Teaching Unit Level**	**Organization Level**
Direct Measures*			
Indirect Measures**			

*Direct measures would be those so close to actual learning that confidence in an impact could be inferred. We have no thermometers to stick in a learner's mouth to gauge actual learning, but direct measures might challenge doubters to prove <u>no</u> impact.

** Indirect measures provide evidence that actions set the stage for, provide an environment for, give support to, enable, help, give encouragement to, mark progress toward, make change in direct measures over time the probable stimulus.

Collaboration Evidence Plan Example

Goal: With the principal as partner, the teacher librarian as banned bird units from the LMC and wishes to document the transition to higher-level learning experiences and their spread through the faculty during the current school year.

	Learner Level	**Teaching Unit Level**	**Organization Level**
Direct Measures*	• (Collab1, 6) Put a joint rubric in place for each collaboration so that both the teacher and the LMS will have evidence of impact on learning.	• Collab1) Document each learning experience where both teacher and library media specialist agrees that the new unit increased student learning. • (Collab2) Measure the time spent collaborating with individual teachers on transformed bird units.	• (Collab4) Document on a collaboration log/calendar, the transformed units and chart their spread across the faculty during the year.
Indirect Measures**			• (Collab13) Document the professional development sessions on collaboration conducted with the faculty before school begins in the Fall and at the beginning the second semester when the principal and I will give an interim report.

*Direct measures would be those so close to actual learning that confidence in an impact could be inferred. We have no thermometers to stick in a learner's mouth to gauge actual learning, but direct measures might challenge doubters to prove no impact.
** Indirect measures provide evidence that actions set the stage for, provide an environment for, give support to, enable, help, give encouragement to, mark progress toward, make change in direct measures over time the probable stimulus.

4 The Contribution of the LLC Program to Literacy

Reading, Viewing, Listening; Writing, Creating, Producing, Sharing, and Beyond

State of the Art

> ***From a Middle School Questionnaire:*** *I like our library learning commons because I can usually find a new fantasy book to read, and last year when my group in English wrote a graphic novel, we put it in the library and it has been checked out 20 times. The commons also has a collection of videos on math problems that help us but we also have created some math videos on our own to help other kids. I don't use the audio books they have, but a group of us volunteer to make audiotapes for a kid in our class who can't see well. The best thing is the makerspace. My group checked out this life size robot to help us with our demonstration in science class and we are gearing up to make robots there for the competition in the spring.*

It is difficult to overstate the case for reading as a major thrust of the LLC program. Historically, this has been the major – and sometimes the only – thrust of the LLC program, and it produces results in achievement simply because reading scores are highly correlated with results on standardized testing. Thus, reading scores have been used as the dependent variable in almost every research study linking school library media programs to achievement.

Now, we realize that young people have access to a plethora of print and multimedia resources, including social media, that have become a part of their world of literacy. They may "read" widely, but that reading is likely to be in the palm of their hand rather than available on a library learning commons (LLC) shelf. And, literacy may extend into the world of the visual, into the audible, and into virtual realities. In the world of the library learning commons, we extend the opportunity not only to consume the resources we own or provide access to, but also the opportunity for this generation to demonstrate their expanded literacy into the world of authorship, creation, production, and sharing across the world.

For as long as there have been teacher librarians, these professionals have had a main target of building enthusiastic, avid, capable, and interested readers. Tried and true

practices in the library world endure, no matter what controversies rage in the "teaching reading and literacy" community.

Some people ignore or dispute the power of the LLC's legacy since its research base is more anecdotal than scientific. Yet it is widely accepted across communities, parent groups, and learners of all ages.

The challenge for the teacher librarians is to preserve the legacy of reading while integrating its aims with those of the language arts curriculum. The LLC program is larger in scope in the 21st century than it was 30 years ago. Other agendas such as collaboration, enhancing learning through technology, and information literacy have taken a prominent position in LLC programs. How can the LLC staff preserve the best of the past while pushing toward today's world? One answer is that like the little Dutch boy with his finger in the dike, school teacher librarians "plug the holes" of whatever skills-based reading program is in place. There is no perfect way to teach reading. All methods have strengths, but none produce 100% results. Teacher Librarians can compensate for whatever problems exist and target individual readers and producers of all kinds.

The federal government has not provided funding for extensive reading collections at the nation's schools. California and Indiana did provide major funding for collections to spur literacy in the late '90s and early '00s, but as budgetary times got tough, those funds were either eliminated or greatly reduced. Local spending never seems to keep pace with publishing inflation, so teacher librarians are left with very limited budgets on which to produce a literary miracle.

The connection of purchasing books for the library with reading achievement has been demonstrated in a number of studies conducted by Keith Curry Lance. Large library collections and high achievement seem to be paired as the factors are measured. However, budgets for collections generally depend on a benevolent administrator or board who believes in libraries. The presumptions, assumptions, and anecdotal evidence linking libraries to reading, while "warm and fuzzy," do not sway votes in a scores-based arena. Everyone agrees that school libraries, and now library learning commons, and reading are essential, but when money is tight, financial support often disappears.

To be sure, some of the LLC's own practices in school libraries have not contributed to the image of the school library as a literacy advocate. When children are denied access to books or multimedia because they owe a fine or are allowed to come to the library media center only weekly, or when librarians are viewed only as caretakers of books, we do not gain friends in the literacy community. We do not appear in the national reading literature with any frequency.

Whatever may be popular at state and national levels, what is really important is the centrality of your library learning commons program to the literacy efforts of your school. This has become more difficult as teacher librarians devote time to inquiry and technology, yet we ignore reading and creating at the peril of our students.

This section provides a buffet of measures that could be implemented at the learner, teaching unit, and organization levels. There are probably more measures that anyone could attempt, but hopefully enough possibilities to match local emphases. It is certain that literacy measures at the organization level have been losing ground, requiring every teacher librarian to gauge impact at the other two levels if continued support is to be realized.

The following list is a starter of ideas that you might want consider, but it is a starter and you will want to add to it.

Central Measures to Consider

(Read1) Document Access to Reading, Viewing, and Listening Materials for Individuals (Learner Level)

Document the fact that users can and do take unlimited amounts of reading materials from the collection – as much as each individual can responsibly handle. Historically, school libraries allowed one book to be checked out once a week. The author has been unable to document it exactly, but during the 1960s most school librarians doubled that number to allow two books per week – and there it seems to have stuck. Many librarians decided that two books per visit was all that most children could handle, yet declared that students had unlimited access to reading materials since they could visit the library as often as they liked. Such limitations are inconsistent with the needs of literacy and the research that says emphatically that "amount counts."

It is difficult to claim true support of literacy when any kind of limitation on reading is imposed. Responsibility is often the key issue discussed ("If I allowed them to take all the books they wanted, they would lose them"). Or, the size of the LLC collection is blamed for restrictions ("If I let them take all the books they wanted, there would <u>be no books left on the shelves</u>." That may sound bad, but would really not be a major catastrophe!)

All organizations promote their own interests over the interests of their customers. Janitors hate folks walking on their clean floors. Grocery store stockers complain of customers messing up the shelves. Public libraries open only when it is convenient for the workers (usually 10 a.m. to 9 p.m.) without regard to users' needs at other times. Closed libraries are useless. Thank heaven for digital access! Reference collections, magazines, and newspapers at last are accessible electronically whenever patrons have a need.

With the need for literacy and the need to leave no child unserved, how can any need of the library learning commons organization be more important than the needs of the individual? Recently, the author conducted a book bag program in a dysfunctional neighborhood of a very large city. Kindergarten children were allowed to take home two books a <u>day</u>, which would cause concern in many minds. But at the end of the year's experience, the most books lost from any classroom was **<u>three</u>**. Case closed. To be sure,

literacy backed by mountains of reading materials requires a redesign of traditional circulation patterns. We're smart enough to do that!

What we say about the access to physical books also applies to ebooks, videos, and audio materials, including the devices to use them if needed and not available to the students. Multimedia and digital resources can be used in ways the printed books cannot in order to raise literacy. They can be used effectively with English Language Learners and struggling readers of printed materials. For many, they may be the key to not only deep understanding and enjoyment, but also may help in the print world as well. It is a matter of helping each learner where they are, not punishing them in the one world of print when they struggle.

We may also reach out beyond what we can own or afford to purchase for print, multimedia materials, and digital resources. The world of open educational resources (OER) is expanding exponentially. So many government agencies, civic organizations, and private citizens are adding excellent content to the Internet that a teacher librarian can provide high quality materials to learners as long as there is access to the Internet both at school and at home. These materials are not "free" in the sense that they take professional time to curate and make available through the OPAC.

The following question bank could be used to survey students on their perception of the accessibility of library learning commons materials. An outside person could use the questions and do a lunchroom test by sitting down at random tables during the lunch hour and asking students some of the questions. Such strong evidence from patrons tests the awareness of policies and their true implementation.

Measuring student perception of access is a **direct measure** at the **learner level**, the **teaching unit level** (if results are looked at by class), and at the **organization level** (if tallied for the whole school). The Krashen review of research shows that access is a predictor of how much students read. We can also predict with certainty that limited access or no access would adversely affect the amount read unless parents intervened to buy books or make frequent trips to the public library.

Reading Question Bank

At Home
- How many books would you say are available in your home for you to read?
- How many of these are books from the school or public library?

From the LMC
- Do you check out all the books you want from the school library?
- How often do you go to the school library to check out books?
- Where do you find materials you want to read in languages other than English?
- Does the school library have a wide variety of books you want to read at your reading level?
- For which topics does the school library have a lot books? Very few?
- What do you wish the school library had more of?
- Do you find new books that beg for your attention?
- If you must read more about a subject you are studying in the classroom, does the school library usually have several choices for you?

In the Classroom
- How many books would you say are in your classroom library?
- Do the books in the classroom library change often enough that there is usually something new to read?
- Do you take books from the classroom library home?

From the Community
- Do you check out all the books you want from the public library?
- How often do you go to the public library to check out books?

Over Digital Networks
- Does the school library supply digital books you can read on your computer, laptop, or PDA?
- Do you read the digital books in preference to the print copies?

Sample questionnaire using question variants:
- How many items can you check out from the school library at a time? (None, one, two, three, all I want)
- How many items can you check out from your classroom library at a time? (none, one, two, three, all I want) (new paragraph follows—some new text)
- How many items can you check out from the public library at a time? (none, one, two, three, all I want)
- How many books do you have at your bedside to read now? (none, a few, a lot)
- Do you have a bed lamp? (yes, no)
- How often do you read yourself to sleep? (never, sometimes, almost every night)
- At home, do you have a comfortable place to read? (yes, no)
- At home, do you have a safe place to store the books you check out from libraries? (yes, no)
- Can you check out all the books you want from the LMC as long as you are responsible? (Yes, no)
- Do you always seems to have something you'd like to read close by? (yes, no)
- During summers and vacation periods, can you check out a lot of books to read from the school library? (yes, no)

(Read2) **Do a Classroom Reading Audit (Teaching Unit Level)**

Many classrooms are quite stark places – bare of interest and obviously tailored only to a textbook and lecture atmosphere. Other classrooms are jungles of bulletin boards, posted student work, fun, and excitement. But does the classroom environment encourage literacy with something to read at every elbow?

Once a month, the teacher librarian might join forces with a teacher to do a classroom audit of accessibility to reading materials. Such an audit might be a part of a school-wide movement to encourage literacy in every learner.

The set of questions on the next page might be a starter list for ascertaining whether the classroom is reading-friendly. For both students and visitors, the ambience of the room should make a literacy statement – the room should be a cog in the wheel of a school-wide literacy machine.

Teachers have often prided themselves on building a personal library, which they share with their students. These collections are rarely large enough, and they become uninteresting to students after the first few weeks if no new titles are added.

Rotating classroom collections from the library learning commons provides the missing key to a fresh and vibrant reading environment in the classroom, and the display of these materials in the room often dictates how much use they will get. For many years, the reading guru, Jim Trealease, suggested installing inexpensive rain guttering so the books in classroom libraries can be shelved face out.

Whatever restrictions the library learning commons places on rotating collections (such as responsibility for loss) can be addressed and solved. Students can be taught to manage the rotating collections, thus relieving teachers of that responsibility.

This technique produces **indirect evidence** of the impact of accessibility on how much students read. Certainly students would not increase the amount they read with no reading materials available. This technique looks at the **teaching level** and, if done in a number of classrooms on campus, also provides evidence at the **organization level**.

Possible Classroom Reading Audit Questions

When the teacher librarian and the classroom teacher audit the reading environment in the classroom, the following questions might stimulate analysis, discussion, and planning.

Is the classroom filled with a wide variety of print resources?

- O Newspapers
- O Magazines
- O Novels representing a wide range of reading levels
- O Interesting non-fiction
- O Student writing, products, creations, showcases

Do these resources circulate from the classroom?

Are these resources constantly revolving from the LLC collection so that there are new and interesting titles always available?

Are there digital collections of reading materials accessible on the classroom computers or on the Virtual Learning Commons?

Do students help manage the classroom collections?

Is the classroom collection large enough to handle student reading levels, demand, and interest?

Are there better ways of handling reading materials (display, storage, arrangement, repair, circulation, etc.)?

Would a casual visitor recognize the emphasis on reading in the classroom environment?

(Read3) Document Online Access to Reading, Viewing, and Listening Materials (Organization Level)

The virtual learning commons has been growing for the last decade. It is now common for a school library to have a webpage linking students to instructional resources, ebooks, and multimedia materials in a very collaborative virtual environment.

Through projects such as Project Gutenberg (http://promo.net/pg/) and the International Children's Digital Library (http://www.icdlbooks.org/), an increasing amount of children's and young adult literature is available both for free and fee. Most of the classics, some with the original illustrations, can be downloaded (Alice *in Wonderland*, for example, has many versions available.). Or try downloading all 2100 pages of *The Complete Works of William Shakespeare*! Several companies such as Audible.com provide audio books that can be downloaded as one would download music, but these companies often charge a fee.

The obvious advantage to ebooks on the Web is that they are available 24 hours a day, 7 days a week and can be downloaded or used wherever there is a connection. There is little need to have 20 copies of *Macbeth* on library shelves when every student can download a copy and keep it for as long as desired. With an increasing number of computers and portable devices available, accessibility is likely to become commonplace.

If you are beginning such a collection (and you should), your patrons should be aware of the service, and you should meter this service to gauge its impact. In fact, as we move more and more toward the virtual learning commons, counters should be set up to measure how often students access what we put there for them.

The question bank on the next page might be used in a survey or group interview to test students' awareness of reading resources in the virtual learning commons. As mentioned, automatic counters on the library website could corroborate what is learned from any questionnaire given to patrons.

Circulation measures, including counters on websites, are **indirect measures** at the **learner level**, **the teaching unit level,** or the **organization level.** They are recorded and reported with some interest, but we still do not know whether students actually read a book they check out. And for many reasons, we may be interested in a <u>count</u> of items an individual accessed, but not a detailed record of what <u>titles</u> were accessed.

Question Bank for Access to Reading, Viewing, and Listening Resources in the Virtual Learning Commons

Create a questionnaire for students or a list of questions to ask in a group interview to test students' awareness of reading materials available in the virtual learning commons.

Do you know how to access music from the Internet? Videos from YouTube?
o Yes
o No

Could you help another person access reading materials or files from the Internet if needed?
o Yes
o No

When you need something to read for schoolwork, what online sources help you? (Check all that apply.)
o The school virtual learning commons
o The digital public library
o The Internet

When you want something to read for fun, what online sources help you? (Check all that apply.)
o The school virtual learning commons
o The digital public library
o The Internet

When you'd like to hear a book read to you (an audio book), what online sources can you download these books from? (Check all that apply.)
o The school virtual learning commons
o The digital public library
o The Internet

Which do you prefer?
o To read a book on paper
o To read a book on screen (computer, tablet, cell phone, other personal device)

If the same book were available in a variety of choices, which one would you prefer?
o Printed book
O Digital book on a computer, tablet, or cell phone
O Audio book

(Read4) **Document Organizational Access Policies to Reading Materials (Organization Level)**

Organizational needs always conflict with customer needs. Janitors complain that students mess up the halls. Bus drivers complain about riders' behavior on their routes. Teacher librarians complain too:

> "If it weren't for those patrons, our shelves could be straight, there would be no fingerprints or marks on the books, the books would not wear out, and the computer networks would WORK!"

> "If we allow patrons to take out only one book, perhaps we can keep up with the shelving. If we let them take all they want, they will, and then who will shelve them?"

> "If we allow students to take all the books they want, we will not have any on the shelf!"

On and on go the excuses because patrons and customers make demands on the organization and the temptation is to build rules that restrict access in favor of organizational performance. It happens in all organizations.

The author has been in schools where kindergartners could never check out a book from the library learning commons. Or, there is the other extreme: "Our students can check out all they want – it's just that they must do it two books at a time. They can come as often as they like." ("In reality they don't, and we are glad because the load would be too heavy.")

Successful business owners know that customer relations is everything. Policies governing access to reading materials must not only be defensible as stated, but also in practice the policy must serve the demands of literacy. For example, if a child lives in poverty, has no books in the home, and cannot get to the public library because it is located across a gang territory line, the school library learning commons is that child's only hope for literacy.

This measure asks the teacher librarian to set realistic policies that actually encourage literacy and to back those policies with evidence that they are in force and they are working for the benefit of every student. If asked about access policies, all the students would report that they had unlimited access to reading materials.

This measure is **indirect evidence** at the **organization level.** However, if access can be tied to the testimony of enough individual students who are flourishing, then the behavior of the organization is actually stimulating the amount read, and becomes **direct evidence**. For example: "We had a policy shift last year lifting restrictions on the number of books students could borrow. Circulation increased 300%, and 89% of the students reported on

a questionnaire that they could check out 'all they wanted' from the library learning commons." In this case, the change in policy could be tied **directly** to an outcome.

Documentation of Reading Access

Provide not only the policy document but also evidence that the library learning commons maximizes access to every individual in the school.

Unlimited access to the LLC collection is available to every student and faculty member (and perhaps parents).

Regular rotating classroom collections are supplied by the LLC.

Rotating home collections for students are supplied by the LLC (there is always something waiting to be read at the bedside or bookshelf).

Materials are plentiful in the preferred or assigned language.

Plentiful materials available for all reading levels of the students as well as the teachers.

Displays and collections are constantly rotated to stimulate interest (as in bookstores).

Plentiful reading materials available for various electronic devices owned by patrons (cell phones, tablets, wireless laptops, or any other device where reading can be displayed or heard).

Collections are large enough to support massive access policies.

Budgets keep the collection fresh and large so that every student can find new and exciting titles on a regular basis.

(Read5) **Gauge Free Voluntary Reading (All Levels)**

Free voluntary reading is the kind you don't have to do. It's reading billboards, cereal boxes, the comics, series books, sports magazines, and best sellers. Done regularly, free voluntary reading helps students develop a reading habit. And reading then becomes its own reward.

If we were to predict what Stephen Krashen might say about measuring how much students read, he'd probably say, "Forget it. Just flood the students with lots of stuff they want to read and it will happen automatically."

We wish there was a way to measure how much a learner reads, because it is so predictive of how well they achieve. Traditionally, students kept reading logs or wrote book reports. Now they earn points on electronic reading programs such as Accelerated Reader or other programs.

We can use any of the measures listed on the next page, or we can ask students to estimate how much they read.

Having students report how much they read is a **direct measure** at the **learner level** that can be tallied at the **teaching unit level** and at the **organization level** as a measure of the health of the reading community.

Reading Gauges

Traditional:
>Paper chains
>Yellow brick roads
>Footprints
>Leaves for a tree
>Golf tees in a pegboard
>Credit for every book report submitted
>Contests with prizes
>Oral reading conference
>Reading records
>Young reader award programs
>Challenges ("If we read 1,000 books, the principal will kiss a pig.")
>Accelerated Reading or other reading programs

And the ultimate?
>There ain't one

So?

>Combine all the ideas above and do the best you can to be inventive.

>Avoid contests and prizes.

>Use challenges. (Everyone can contribute to the goal and everyone wins.)

>Be inventive. (Do reading logs on video for local YouTube channels.)

Question Bank

>How often do you read just for fun? (never, once a week, several times a week, every day)

>How many minutes a day would you say you spend reading for fun? (none, 10 minutes, 20 minutes, more than 20 minutes)

>How often do you read yourself to sleep? (never, once a week, several times a week, almost every night)

>How often do you read on social media such as Facebook, Twitter, Instagram, etc.? (none, 10 minutes, 20 minutes, more than 20 minutes a day)

(Read6) **Have Learners Keep Reading Logs for Special Purposes (Learner Level)**

At the Learner Level

During a collaborative unit between the classroom teacher and the teacher librarian (such as a study of insects, California Missions, states of the United States, etc.), the teacher librarian could suggest that the amount the students read be added to the rubric for the unit. Thus, the student would be rewarded for reading beyond the textbook chapter. The reading log found on page 71 would reward various types of reading:

> Browsing or skimming to build background,
> Watching videos on the topic,
> Easy but informative reading or listening, and
> Substantial reading on the topic.

The points generated from the log would be added to the total rubric score for the unit as administered by the teacher. The library media specialist might score the logs for the teacher once or twice until the technique is integrated into the normal teaching routine. Points could be required to get an A or could be for extra credit. In any event, the notion supported by the Krashen/McQuillan research is that the more reading learners do on a given topic, the more they retain and the higher they score if tested on the topic. The teacher librarian would concentrate on providing each learner with a broad number of choices from the print, multimedia, and digital collections. Highly pictorial items, good children's books (even for high school students), and informative and attractive non-fiction in any format would be encouraged, so there would be numerous choices for readers at all levels.

The teacher librarian would report success of such a technique for various types of learners with the focus being on reluctant readers or readers who would benefit the most. Follow-up interviews with various types of learners would give clues about collection building, when and how to introduce additional reading, the provision of choice, and the impact of additional reading on content learning success. Reading logs are **direct measures** of the amount a student reads.

At the Teaching Unit Level

Examine individual reading logs for a topical unit the class has completed. What patterns are apparent? Use this analysis as the basis for a conference with the class about additional reading. Why is it important? What can the teacher and library media specialist do to make it a better experience? Are there implications for the reading collection? Were the types and level of books, websites, or other reading materials adequate? "Getting it right" for both individuals and groups will spur a change in the reading climate towards acceptance of – and perhaps even enthusiasm for – wide reading. Reports by groups might focus on acceptance of additional reading as a part of a normal topical unit. Depth of knowledge might also be documented as assessments elicit ideas beyond the textbook,

the workbook, and the lecture. The analysis of reading logs at the classroom level is a **direct measure** of the amount read and thus a strong predictor of achievement.

Note: Even though the following reading log seems to be paper based, a similar response tool could be created in Google Docs, Sheets, or on personal blogs. If one also thinks about encouraging students to recommend choices and cross that idea with the Rotten Tomatoes concept for rating movies, then could our modern tech tools be used to motivate ratings and push the best of the best books, videos, and other media to the top?

My Reading Log for _____ (topic of research/assignment/personal exploration)

1. Things I scanned (quick look/read)
    Books
    Magazines
    Websites
    Online
    Video/multimedia sources

Time I spent:

What types of reading helped introduce me to the topic?

2. Easy reads that helped me understand more about the topic (could list fiction or nonfiction)

Rate each Item:
* Not worth the time I spent
** Somewhat helpful
*** Quite helpful
****Everyone should read this; it's that good

3. Items I had to read slowly and carefully because they were important or assigned.

Rate each Item:
* Not worth the time I spent
** Somewhat helpful
*** Quite helpful
****Everyone should read this; it's that good

(Read7) Ask Who Likes to Read (Learner Level)

Is this a pipe dream in the day of television, video games, and a hundred other distractions? Perhaps, but achievement scores and reading scores are so highly correlated that they are interchangeable in many research studies. The simple fact is that students who don't like to read don't. And while there are some readers who are alliterate (they can read but don't), the great preponderance of readers who read well enjoy it.

How can we gauge who is an avid reader? Probably just ask them.

The following question bank is a simple one. It can be asked orally or in a survey. It can be asked by almost anyone during a lunchroom test. It can be asked in the halls, in the LLC, on the street, or even on an airplane. Surprisingly, parents worry about this as much as anyone but often don't know what to do if their child is not reading regularly.

Be brave enough to ask. It is a **direct measure** at the **learner level**. Collected for a classroom, it is a **direct measure** at the **teaching unit level**, and the percentage of students who claim to enjoy reading is a measure at the **organization level** of the health of the reading community.

Ask regularly. Ask before a reading initiative and at the conclusion of an initiative. Ask at the beginning of the school year. Ask in the middle. Ask at the end. Most of the time, students will tell the truth.

Question Bank

Variants:

> Do you enjoy reading?
> What's your favorite book?
> Could you recommend a good book to your friend Jorge?
> Who is your favorite author?
> Do you like series books?
> Would you rather read the book first before seeing the movie? The other way around?
> What's the best book you ever read?
> What book are you reading now? Would you recommend it?
> What did you think of the Newbery/Caldecott (or other award) winner this year?

(Read8) From Reading to Writing and Reporting

In a recent article trying to summarize the research on writing, Dana Goldstein admits that the experts disagree on how to teach writing (at: https://tinyurl.com/y8hzqatj), but a couple of paragraphs jump out with a clue to teacher librarians:

> *Mrs. Sokolowski is right that formal grammar instruction, like identifying parts of speech, doesn't work well. In fact, research finds that students exposed to a glut of such instruction perform worse on writing assessments.*
>
> *A musical notion of writing — the hope that the ear can be trained to "hear" errors and imitate quality prose — has developed as a popular alternative among English teachers. But what about those students, typically low income, with few books at home, who struggle to move from reading a gorgeous sentence to knowing how to write one? Could there be a better, less soul-crushing way to enforce the basics?*

Such an idea seems to reinforce our argument that access, access, access is everything and from Stephen Krashen, "a person learns to write by reading." It also reminds us about the uTEC Maker Model created by Bill Derry, David Loertscher, and Leslie Preddie pictured below.

Budding artists use this model regularly. To learn to paint, first copy the masters to figure out their technique, then start tinkering with that technique, then get serious about your own technique, and finally, home and create your own style. Suppose that the library learning commons opens the door to all types of writing beyond just academic stuff to the creation of stories, scripts for comics, dramatic scripts, fan fiction, graphic novels, rap, slide presentations, mashups, blog posts, poetry, and even technical writing for the creation of YouTube tutorial videos?

Suddenly, the question becomes: "What is it you want to create?" and then try this out using the uTEC Maker Model:

- Pick out the type of writing you want to do well.
- Read as many great examples as you can.
- See if you can write something almost exactly like that author did.
- Then study that author's writing. How was it put together? What made it "sing"?
- Start to tinker with that piece you just wrote.
- Getting serious? Then try to use the techniques that other author did, but change lots of stuff…write once, revise and revise and revise.
- Ah, you have found your voice…go for it!

Since teacher librarians hold the key to the best writing in every genre, type of format, and medium, how about opening our flood gates and experiment with a teacher who is open to allowing students a wide choice in products they create – from serious to entertaining, from formal to inventive. Mix the best of older writing strategies with creative ones. Obviously, the results can't be worse than they already are. Then, document the results.

Documentation (Learner Level and Teaching Unit Level)

With a teacher willing to experiment with student creations on a topical study or as a part of language arts creative writing, pen up the possibilities, demonstrate the method, and, student by student, mentor the process. This could be done in groups as well as individuals. Encourage peer editing and advice and make it fun. You might begin with storytelling. First, have a circle of students relate a story as close to the original. Then in a round robin, have them start tinkering with the events, the characters, the plot, etc. until they get the idea of creativity and the process that happens during the uTEC model path. Build a gallery of creations for sharing and do a Big Think with the class after it's over. Ask the students "So what?" and "What's next?" Could they use this technique to learn to write and produce anything from serious term papers to movie scripts? Report this out as a case study with a plan for replication, further experimentation, or abandonment. For students who did thrive, think of creating a library learning commons showcase or YouTube channel, and certainly have the students nominate peers to do listening lunches in the LLC.

(Read9) **Writing, Creating, Producing, and Sharing**

In the library learning commons, our patrons cannot only read books, they can write them; they can watch videos but also make them; they can consume knowledge but also create it. This measure looks at potential; opportunities; tools begging for use; a creative learning environment waiting to explode with creativity; and accomplishing more than was envisioned.

Here we first think of the physical space that connects literacy to creativity and possibility. Help expand this list:
- Space to write, compose, think, storyboard, and collaborate
- Video production equipment and space
- Audio production facilities
- Space and equipment to use computerized production for individuals and small groups
- Whiteboards for brainstorming ideas

However, it is the virtual learning commons where the proliferation of tools and resources can attract even the most reticent reader/writer and creator. In a special section of the traditional library website, we create a place to explore, use, create, produce, and write every form of literate expression. One simple tool to use that can be accessed by most devices that students and teachers have is the Symbaloo webmix. Like screens of apps on cell phones, the webmix can be constructed to gather/curate tools into a central location that is easy to access by anyone 24/7/365. Here are links to:
- Storyboarding tools
- Comic creation
- Book writing software leading to book production and sales online
- Mashup tools such as Animodo
- Drawing, artistry, 3D modeling
- Virtual document creation both private and collaborative
- Graphic novel creation assists
- Video and photographic tools
- Audio production
- Tutorials to stimulate high quality literacy projects
- Artificial Intelligence assistance to correct errors, boost collaboration, make recommendations, probe possibilities

Document at the organizational level, the possibilities in your library learning commons. Document not only the possibilities but also the use made of it by students and teachers by showcasing the best on the virtual learning commons on the home screen every day: that new story, video, re-enactment, poetry slam, etc. Sponsor major events like a band or choral music performance to showcase

(Read10) **Tell Stories**

Collect stories about your efforts to improve literacy in the school – short stories, longer stories, real stories – and make them available from your own mouth, videos, or your blog.

Other Possible Literacy Measures to Collect and Report at the Learner Level

(Read11) **Standardized Assessment in Reading (All levels)**

Rather than worrying so much about the scores on tests over the entire school, teacher librarians might focus attention on particular types of students, individuals within particular classrooms, and partnering with whatever language arts initiatives are of the school. Demonstrating that access is the number-one priority for every reader in the school is probably the most basic and foundational of all the things a teacher librarian can claim.

(Read12) **Self-Assessment in Reading (Learner Level)**

Help individuals chart their own progress toward becoming avid and capable readers. A teacher might have an individual learner chart progress on both high level and low-level assessment tests. These can be charted and graphed by the learner and might be done as a collaborative project with the teacher librarian. Learners should know that they are learning a lifetime skill with major benefits in every aspect of schooling. For the teacher librarian's role, the reader should understand that the library learning commons program fosters the love of reading rather than just the skill of reading. Through interview or questionnaire, the reader might respond to the following points:

- o I take advantage of the access to books in the LLC, the classroom, and the home.
- o I am a responsible user of print materials from the school and the LLC.
- o I realize that to build skill in reading and learning English, a lot of reading is the best thing I can do.
- o I realize that all types of reading help (sports, hobbies, magazines, websites, comic books).
- o I have a reading habit (I read at least 20 minutes every day for fun).
- o I read widely. That means that I read both fiction and nonfiction across many topics.
- o I have special topics that I really enjoy reading, such as science fiction, fantasy, romance, adventure, astronomy, poetry, or science, just to name a few.
- o I give recommendations to my friends about what I have enjoyed and listen to them when they recommend something I might enjoy.

- o I log the books I read in a journal or database just to see how much and what I have read.
- o I enjoy talking about the things I read.
- o When I encounter words I don't know and can't figure out what they mean, I look them up in a dictionary or on my computer or phone.
- o I like to read.

(Read13) **Contests**

Numerous motivational efforts often focus on the classroom – building paper chains or yellow brick roads for every book read, participation in state book award programs, or promoting local reading initiatives. Too often such initiatives turn into contests with negative results. For example, the author's grandson was recently recognized for getting the most AR points for the year. I was happy for the recognition, but Grandpa had stacked the deck in his favor by supplying him with hundreds of books from the time he was born. But what about Joe, or Mary, or Juan in his class who gave up competing because they knew my grandson would out-read them? I call that recognition counterproductive because it actually <u>discouraged</u> reading. My grandson doesn't need recognition for reading. Reading is its own reward for him, and he is already hooked. Challenges where everyone participates as much as they can to help the group achieve are superior in encouraging reading. We don't want any "losers"! So what? Demonstrate that for every initiative that centers on reading, every participant helps and wins.

(Read14) **SSR (Still a good idea)**

Report the success of an SSR initiative classroom by classroom, including the reasons for success or failure in individual classrooms.

(Read15) **Collaborative Units (Teaching Unit Level)**

Report the number (by discipline or grade level) of collaborative units where a "reading" component was present. Report the extent to which both fiction and nonfiction materials were integrated into collaborative units. Prepare a guesstament of the amount read by students in a particular unit with the amount that the teacher observed the last time that unit was taught. Did the partners recognize any differences in background knowledge, deeper learning, or interest?

(Read16) **Support of the Language Arts Curriculum (Teaching Unit Level)**

Provide evidence of support for the language arts curriculum as it is constituted in the school and as it evolves over time. The LLC program can provide many services and activities, including technology and information literacy into the language arts curriculum. During a planning session, create a worksheet like the one below and negotiate the specifics of how the programs can benefit from one another.

Worksheet:

List of Major Language Arts Standards and Elements	**How the LLC Can Respond**

List of the Major LLC Program Elements	**How the Language Arts Program/Teachers Can Respond**
Collaboration:	
Reading:	
Technology:	
Information Literacy:	

(Read17) **Budget**

Demonstrate how resources are spent on specific collection and connection building targets:

The general collection.

Particular school literacy initiatives.

Individual learning experiences such as the state history units in 4th grade.

Technology that is used to enable access as well as boost reading, writing, and creation of projects where literacy plays a major role.

The amount of use made of materials that were targeted for specific purposes.

The mix of local, grants, state, federal monies that support specific collection targets.

Chart the costs over time of specific types of materials to report improvement or regression over time.

Whether budgets keep up with normal wear and tear, loss, and currency considerations.

Compare the cost of reading skill programs to those of the LLC. (textbooks, reading technology programs, classroom kits or sets, etc.)

Dream Big example: According to Loertscher's experience,[1] when you begin with a collection of 10,000 books in an elementary school of 500 children and allow those children to check out all the books they want, in three years you will have exhausted the collection for almost every reader. What will you do for the next two years the students are in your school? Loertscher recommends that schools seriously dedicated to literacy (particularly schools in poverty areas or with a high number of English-challenged students) begin with a collection of 30,000 volumes. This may sound excessive and expensive, but it is actually a very inexpensive literacy program. Now the reader will immediately ask where they would store such a large collection. Here is how it can easily be handled. On the first day of school, check out 50 books per student for a rotating home library, 500 books for every classroom's rotating classroom collection, and 100 books for every teacher's personal rotating bedside table library. You will find you have too few books on your shelves. In addition: In cooperation with the public library, the school district provides a collection of 50-70,000 ebooks for every student available on any device they use at school, at home, or on their personal device.

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[1] This is the result of Loertscher's experience in his first elementary school in Elko, Nevada during the 1960s. How many elementary schools with 500 children have 10,000 volumes even today, let alone 30,000?

Reading Evidence Plan Template

Detail in the appropriate box possible measures to be used in your reading program to measure its impact on achievement.

Goal:

	Learner Level	Teaching Unit Level	Organization Level
Direct Measures*			
Indirect Measures**			

*Direct measures would be those so close to actual learning that confidence in an impact could be inferred. We have no thermometers to stick in a learner's mouth to gauge actual learning, but direct measures might challenge doubters to prove <u>no</u> impact.
** Indirect measures provide evidence that actions set the stage for, provide an environment for, give support to, enable, help, give encouragement to, mark progress toward, make change in direct measures over time the probable stimulus.

Reading Evidence Plan Example

Goal: To increase exponentially every student's access to books they want to read in the LMC, the classroom, and the home.

	Learner Level	**Teaching Unit Level**	**Organization Level**
Direct Measures*	• Through questionnaire or interview, the student should agree that access is at is maximum. • Evidence that students actually take advantage of maximum access. • The student's parents, teacher, and the teacher librarian, along with the student, agrees that responsible behavior is equal to the maximum access allowed.	• Students would agree that when they need to read for schoolwork topics, there is almost always a wide variety of material to choose from. • Assessment of an individual student's reading log is required as part of a unit of instruction to see that access was maximized. • The behavior of a teacher toward access issues pushed by the LLC program is positive.	• The behavior of almost all the faculty members toward access issues pushed by the LLC program is positive. • There is documentary support by administrators for the access issues of the LLC reading program.
Indirect Measures**	• Policies relating to access by individuals are in place to allow maximum access. • Abuses in the use of electronic reading programs (or any other initiative) are solved for the individual reader.	• A classroom audit has resulted in positive changes in access for students in a particular classroom. • A particular classroom has a rotating classroom collection and it is working.	• There is an ample budget for the reading collection to support the needs of expanded access. • Access policies for the entire school are in place and make provision for both groups and individuals. • Digital access to reading materials is ubiquitous. • The physical environment of the LLC is conducive to access.

*Direct measures would be those so close to actual learning that confidence in an impact could be inferred. We have no thermometers to stick in a learner's mouth to gauge actual learning, but direct measures might challenge doubters to prove <u>no</u> impact.
** Indirect measures provide evidence that actions set the stage for, provide an environment for, give support to, enable, help, give encouragement to, mark progress toward, make change in direct measures over time the probable stimulus.

5

The Contribution of an information Rich Environment to Teaching and Learning

State of the Art

As long as there have been libraries, the contribution to patrons has been a large collection of books to be acquired, cataloged, circulated, and read. The larger the collection of books, the better it was considered to serve its patrons. However, with the advent of the Internet and digitized books, periodicals, and websites, the entire world of information resources has changed in the past two decades. For classroom teachers and students, Google has become a mainstay of information alongside the existence of Wikipedia. Google also began a major project to digitize the books of the world's largest collections and digitized millions of them, but that project has been slowed because of copyright and intellectual property considerations.

Many have questioned the need for book collections in a school because of the transfer of information from the printed tomb to the digital access in the hand. Thus, the entire idea of the library collection must be reconsidered it it is to remain in existence at all. Many of our patrons, however, prefer the printed book to the ebook, so our collections still retain that format. But the digital collection of most school libraries far suprpasses the print collection in size and often in quality.

In this chapter, we introduce collection mapping as one way to target collection building in order to demonstrate that the library learning commons collection is not only relevant to the curriculum it supports, but can actually compete directly with Google searches in terms of quality if not quantity.

Trends to Think About

As we look across the information landscape, we ask our reader to consider some trends that require a lot of thinking, planning, and change from the traditional ideas of collection development in the past. Here is our list. Perhaps you can add to it as you work through the ideas embedded in collection mapping:

- From ownership to "access to…"

- In addition to purchased materials, the curation of open educational resources (OER)
- From balanced collections to focused collections
- From what the critics prefer to what users prefer and will use
- From teacher librarian selected to collaboratively selected
- From high quality information in any format to high quality information in any format (no change)
- From tight budgeting to focused budgeting by curricular need
- From an isolated collection to a networked collection
- From static holding to elastic responsive collections
- From availability from a central place to access 24/7/365
- From single format to multiple formats on preferred devices
- From controlled cataloging to curated crowd tagging
- From central storage to distributed storage and retrieval
- From only commercially published to student and teacher created
- From a physical location to the hand-held device
- From classified collections to tagged and mobile collections
- From general collections to chunked collections supporting specific curricular targets
- From book budgets to collection chunks supported from a variety of sources;
- From bloated textbook budgets to well supported information blocks where the library learning commons IS the textbook
- From hoping to make a difference to measures demonstrating impact on literacy and what patrons know and are able to do because of our support
- Trends you see:

After thinking about the trends that surround all of us in the world of information, it would see reasonable to reframe the idea of connection development to both collection development and connection development.

Definition of Collection Mapping Terms

Collection Development. Collection development consists of acquiring items that will be owned, including leased materials such as databases.

Connection Development. Here the teacher librarian or a group of cooperating teacher librarians build links to resources outside of what a single library or group of libraries "own." (OER) created by individuals or groups; various editions of classical literature from Project Gutenberg immediately thinks of linking to various collections at the Library of Congress; various art museums around the world; government documents; the western history photograph collection at the San Francisco Public Library; and open educational resources such as Kahn Academy – these resources have a place in the OPAC of the library learning commons.

Curation. We think of the library learning commons as a place of creation as well as consumption of our resources. The teacher librarian captures the best of what the students create, and as projects reach out into the community, the products of investigations are collected, stored in the cloud, and cataloged in the OPAC.

The Core Collection. Most libraries provide a broad collection across many topical areas in the hopes that there will be something for everyone who comes to the library. It is multimedia in scope and format and can be thought of as a water puddle that may be very wide but an inch deep; a little bit of this and a little bit of that; a few representative resources of many topics; the best of the best that is published or created each year of general interest. Such a collection has been known in the literature as a balanced collection: a little bit of everything but nothing much of anything.

Topical Emphasis Collections. When teacher librarians recognize curricular topics that need substantial support, they develop topical chunks of print, multimedia, digital, OERs, and curated items in support of specific projects they know that students will benefit from. Examples might include common state history, the study of a Shakespeare play, an environmental project in the community, and tutorials of the latest technology in the school. These topical collections are cataloged in the OPAC for instant use when the topic is repeated in the future.

The Creation of Collection Maps

A collection map is a visual representation of the various chunks of the collection that are currently available or topical collections the teacher librarians want to develop. These visuals might be side-by-side large posters that show current collection strengths alongside another map that would be the proposed collection map. To the patron, these visuals help understand what I cannot see by walking around the shelves.

As an example of a general emphasis collection and specific pieces of that collection, St. George's School in Vancouver, British Columbia, Canada wishes to highlight its English Literature collection to the high school students who use it. The following infographic demonstrates the breadth of the full collection while highlighting the strengths of the English Literature general collection. It then makes special emphasis of the collection that specifically aides students doing research on Shakespeare's Hamlet. It emphasizes both the broad fiction collection and the multiple physical and digital resources available. Note the promotion of online databases and streamed and DVD video resources as part of the same collection.

St. George's School Library

English in Depth

All your resources for studying English, in ONE PLACE!

In an era of information everywhere, the most powerful tool you have at your disposal is a filter. Filter out what you don't need so that you can see what you do. Let the Library be your information filter.

Did you know?

The library has:
- More than 17,000 physical books
- More than 4,000 ebooks and audiobooks
- More than 900 DVDs and videos
- 31 titles per student
- More than 30 Online Databases containing hundreds of thousands of articles, audio recordings, videos, and images.
- 3 knowledgeable staff to help you with your research
- an online Virtual Learning Commons that brings it all together

What does the Library have to help me with my English study?

- Fiction
- Books about Literature
- Books about English Literature
- Short Story Collections
- Drama
- Literary Arts Magazine Subscriptions

Titles
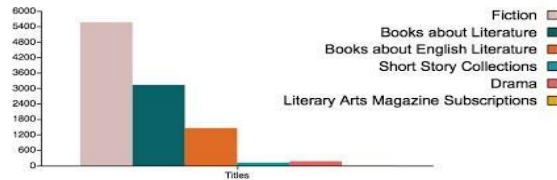
Database Resources

108,000+
Articles on English Literature

2,800
Literary Journals delivered digitally

150,000+
Full Text Novels, Short Stories and Poems

3,000
Videos related to English Literature

Hamlet – In Depth

Studying Hamlet? Did you know that the Library has a large number of resources to help. From different editions and interpretations of the play to articles discussing everything from major themes of the work to legal battles over specific productions, we have you covered.

6 editions, including Manga and ebooks

6 film versions, including 2 stage versions

3 Audiobook readings

16 books about the play

Over 3400 articles discussing the play

More than 60 short videos looking at aspects of the play

In this example, suppose you took such a large poster to an English Department meeting and use it as a discussion piece about the state of the collection at this time. Then, you could open the conversation to what the teachers think not only about the current collection, but also about the direction it should take. From this discussion, you could make collection targets, estimate the cost of the proposed collection, and then start looking for funding to make it happen. Perhaps the department could help, and they could invite the administration to a second meeting where this proposal was discussed. Funds to develop the collection could be targeted, spent, and reported back to both administrators and the department.

Central Measures to Consider

(Info1) Use the OPAC to Describe the Collection (Organization Level)

Most OPAC systems have become much more sophisticated in the past decade and can now be used to develop many reports about the collection. Thus, instead of just reporting such things as collection size, age, and circulation, much more detailed looks at collection segments are possible. However, the teacher librarian needs to not only know what measures are possible, but must be able to use the system in order to get the most out of it. The company who created the system often has workshops and representatives who can assist.

The OPAC should be able to provide access when searched not only to the book collection that is owned, but also multimedia, OERs, database searching recommendations, and anything else that would help in the competion between the collection and a Google search. One way teacher librarians extend the searching and make it a "one search" place is to have a subscription to LIBGuides, or just use a Google Doc that can be cataloged and can serve as a guide to information beyond the owned collection. In addition, patrons can often participate in the creation and maintenance of this extension through the use of comments or Google forms that recommend resources they have found or note problems with urls.

Here is a list of possible findings to create and report:
- Demonstrate that the reporting system of the OPAC system is being used to its ultimate capacity; or, if crude measures are only possible, use such information to promote the proposal to invest in a new system.
- Demonstrate how the OPAC can be used as a "one search" source that puts it in contention with a Google Search for certain topical learning experiences that are happening in the school.
- Learn how to tag all the resources connected to a particular topical learning experience. Not only can students enter one search term and find everything there, the teacher librarian can control that piece of the collection for selection,

maintenance, weeding, budgeting, and usage statistics. Be able to demonstrate as well as document this chunk-by-chunk analysis of the collection.

(Info2) Describe and Rate Topical Collections That Support Specific Curricular Topics (Teaching Unit Level; Organization Level)

Rather than being seen as a quiet place with a nice collection, the collection of the library learning commons needs be recognized by administrators, teachers, and particularly students as "the" place to "get what I need" to help me learn. "Yes, I may have Google, but when I have an assignment, I start at the library learning commons first and then check Google." Such notoriety happens when the collection is chunked into a bunch of subcollections that support topical units in the school's curriculum. Each topical chunk will have a tag in the OPAC that enables the teacher librarian to care for many smaller collections that work together to support every student and teacher.

Instead of taking a month to try and tag such subcollections, start with a topical unit you are partnering with the classroom teacher and tag that collection. Over the school year, you will have tagged most of these kinds of collections. Create a graphic showing these collections, and for each topical segment, indicate its size and give it a quality rating. We suggest the common five-star hotel or movie rating as a quality symbol that most will recognize. Your collection map of these segments will grow not only into the state of the current collection, but will also beg for you to create a proposed collection map that will show where you would like each collection segment to end up in a year or two. There are three choices for each topical collection. It might need to grow; it might need to be maintained at about the same size and quality; or, it might need to be de-emphasized because it is no longer a part of the curriculum. If you attach money to each topical collection, you provide administrators and the faculty with a tool to help you. Just asking for more money does not cut it.

(Info3) Probe the Use of the Collection During a Learning Experience (Learner Level; Teaching Unit Level)

The test of any collection is how it responds when demands are made on it. The advantage of chunking a collection will be the best way to measure its use. For example, the Dewey Decimal System often scatters topics across a wide range of classification numbers. Materials about the U.S. Civil War will be located in almost every class: the history in the 900s, the weapons in the 600s, the photgraphy in the 700s, and on and on and on. The only way to link all the resources is to tag them in the OPAC. When a student needs something and searches the OPAC by tag, up will come materials in many locations in the LLC shelving units as well as leads to OERs, databases, and other libraries in the district and in the community.

Probably the best way to determine use is to examine a random sample of products where the students have created a bibliography. A quick scan can probably reveal what has ended up in a report, term paper, or presentation.

Another method is to create a Google Form that asks students to copy in all the citations they have or every third one, if many, and then report:
● Where I got this item
● Rate how useful it was as a resource
● Allows for comments and suggestions

Another interesting measure is to take a sample of the products that students create and assess them in the first pass for content. Then do a second assessment just on the sources used for the products. Is there any difference between projects that used high quality resources and those that obviously drew upon what was easy to search on Google, what happened to be handy, or what was outdated? Some teachers just assign a specific number of resources, such as two books, one article, and assume that students will find good information. Such a comparison is likely to be an eye opener.

Looking at this data provided by individuals and the class as a whole will help the teacher librarian and the teacher determine what to do with the target collection should this topic be taught again. Multiple reports about collection segments provides excellent guidance about the direction of the collection as a whole.

(Info4) Document the Development or Improvement of a Topical Collection That Supports a School or Curricular Initiative (Teaching Unit Level) (Organization Level)

Suppose a new topic for a learning experience is happening and you as the teacher librarian are partnering. Frantically, you do a search of the OPAC, databases, and other easily accessible collections and tag those before the unit begins. Suppose the collection does not respond well, and you have a planning session with the teachers. Will this topic be taught again? If yes, what kinds of resources will we need? You construct an infographic showing where the collection is at this time, where you wish it to go, and the estimated cost of the growth before next semester or year.

If the teacher librarian documents such events, a clear picture emerges about the responsiveness to topical units taught in the school emerges. Such analyses, presentations, followups, budget considerations, and acquisition plans will result in a continual march of the collection to the demands being placed on it.

(Info5) **Document the Progress Toward Connection and Connection Development (Organization Level)**

Across time, a pattern of collection response, usefulness, and reputation will emerge. The teacher librarian puts together evidence from a variety of measures to demonstrate this pattern and propose strategies of improvement. Who cares? So what? The actual evidence turns up in the quality of the products students are creating. The difference between information poor products and those with lots of high quality information is a huge indicator of the amount of deep learning going on.

(Info6) **Tell Stories**

While the adults will have stories to tell about the kinds and types of information that kids and teens use for their products, ask the students themselves to tell stories about their adventures with the world of information. They may recount experices on videos that:

- Describe fake news they encountered and were about to use it when…
- How they were trying to decide what facts to use because there was no agreement in the sources they used.
- How the solution they proposed would have been harmful until someone pointed out that they had better check again.
- The junk they found when they were searching the Internet.
- How many ads they had to sort through before they could find some information of value in a Google search.
- How they decided that nothing they found was valuable and they figured that rethinking everything and reinventing a new way is probably like Christopher Columbus deciding to sail when all the scholars told him that he would fall off the edge of the earth if he ventured too far.

In Conclusion

The world of information has become so vast and complex that new and smarter ways of building collections and connections needs to happen. Students need to be wary of sources and ask, "Who is saying what to me for what reasons and for what gain?" Much is at stake, and it all starts as soon as children are searching the Internet. No longer can teacher librarians get a budget and then read the reviews and pick what seems to be popular with the critics. Chunking the collection into pieces that match curricular needs and then paying attention to resources that are high quality and support learners from those who struggle to those who are extremely smart and informed would be a smart pathway to document and present to all who will listen. We can no longer just select a group of best sellers or award winners and think we have done our job.

6

Inquiry and Information Literacy

State of the Art

Teacher librarians have always helped students do research, even though during most of the 20th century there were only books, a few reference books, and the Reader's Guide that served as an index to magazines. In the early 1980s The British Museum sponsored a movement to teach "information literacy" to the children and teens across England. The first information literacy model in the U.S. appeared in Barbara Stripling and Judy Pitts' book *Brainstorms and Blueprints* (1987) and was soon followed by Michael Eisenberg's Big Six model.

In 1991, Ann Irving, who had helped with the information literacy project in England, came to the Treasure Mountain Research Retreat in Atlanta, Georgia and introduced many scholars and practitioners to a whole new world of using information literacy as a method to teach young people how to learn. Thus began a major role shift for the teacher librarian who had previously concentrated on building a love of reading.

Since that beginning, the world of information and technology has exploded, and the opportunity to learn about anything one wants to learn is in the palm of the hand or nearby on a favorite device. While the young people of today are experts at social media, their overconfidence does not serve them well in the learning skills they need.

Thrust into the world of educational theory, teacher librarians think about preparing students for a life long learning journey as picture in the poster below:
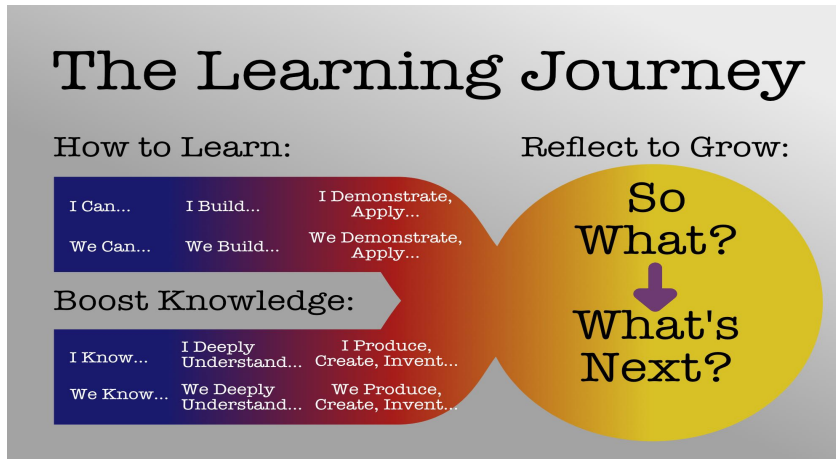
Furthermore, we see the successful learner who can develop personal expertise, but can work successfully in cooperative groups where they can contribute to collaborative intelligence as they solve problems and create inventions and techniques to solve many local and global challenges. This challenge is pictured in the following poster:

The chief strategy to accomplish the learning journey has been to use an information literacy model or inquiry model to guide students through an investigation. A number of models have been developed over the years, but most have the following elements:

The Investigator

- Questions and Wonders
- Finds & Sorts
- Consumes and Absorbs
- Thinks & Creates
- Summarizes and Concludes
- Communicates
- Reflects on Process and Product

The Investigator:

1. Questions and Wonders (Formulates and shapes an inquiry)

2 Finds & Sorts (navigates and selects the best from the world of information)

3. Consumes and Absorbs (develops under standing during reading, viewing, listening)

4. Thinks & Creates (Compares and contrasts, judges and tests)

5. Summarizes and Concludes (Draws together a position based on the best information) (Organizing what others know but also creating new ideas)

6. Communicates (In an appropriate format or media; as an individual or group)

7. Reflects on Process and Product (What do I know? what do we know? How did I learn? How did we learn? How could we do better the next time?)

Two major ideas have emerged in the library profession on how to equip young people with these skills. The first is the development of an inquiry curriculum with benchmarks at each grade level from Kindergarten through grade 12. Some teacher librarians run their inquiry courses as a parallel curriculum that is coordinated with what a particular topic is being taught in the classroom. The second method is to build a repertoire of tutorials that can be embedded just in time during a co-taught learning experience.

One common practice is to teach inquiry, usually database searching, as one-shot, on demand lessons when teachers ask for them. In this case, the research project happens mostly in the classroom, and the teacher librarian never knows what impact their one-shot lessons have since there is usually no follow up or assessment of student products by the teacher librarian.

The measures in this chapter presume the embedding of inquiry and information literacy into co-taught learning experiences as the chief way of gauging any actual impact on teaching and learning. We have never been impressed with attempts to teach a course in inquiry required of all students.

Little attention has been paid by the larger educational community in the growing expertise of teacher librarians to teach and integrate inquiry into any parts of the larger curriculum. When the U.S. program of No Child Left Behind was happening during the early part of the 21st century, inquiry in general took a backseat to the development of factual knowledge that was assessed on standardized tests. Realizing the imbalance, a number of theorists developed inquiry-like models that not only addressed the basics of inquiry, but also concentrated on the soft skills of how to learn. Examples include

problem solving, critical thinking, personalized learning, design thinking, overcoming failure, persistence, and mindfulness, just to name a few.

Our advice to teacher librarians is to know the details of many of these learning strategies, and whatever is adopted in a local school, adopt and enlarge that theory with what we know about inquiry, and then demonstrate the impact of a combined approach to teaching and learning in whatever school you are a part of. Perhaps we take a larger view from the student perspective and equip every learner with their own personal learning environment. This idea, as pictured below, has three main sections: (1) the development of a portal to the Internet that I control and stay organized – much like the development of apps groups on my phone where those I use frequently are on the first screen. Then, (2) I develop a personalized learning network where I am constantly tapping into my interests and pushing myself to continue to gain personal expertise. And, finally, (3) the idea of my own portfolio that has two sections: things that are private and I am working on, and those competencies that I want to make public.

Personal Learning Environment

Communicate

Portal

- My Own Information space
  - Designing for what I want to learn and what I must learn
  - Managing and organizing my space
  - Connecting to best resources and tools I like to use
  - Designing a safe learning environment

My Personal Learning Network

- Who I learn with
- How I learn best
  - using best strategies and tools
  - Building personal competence and collaborative intelligence
  - in both formal and informal environments
- What I create
  - personal and collaborative products

Personal Portfolio

- Demonstrating what I Know and Can Do
  - Archiving knowledge, skills and products that demonstrate personal expertise and collective understandings
- Creating My Public Face
  - Presenting myself to the world
  - Broadening my learning communities

Create

← **Reflective Progress** → ← **Learning to Learn** →

Central Measures to Consider

(Inquiry1) **Pair Inquiry Skills to Content Knowledge Skills in Order to Ascertain Directly What Has Been Learned (Learner Level)**

The most powerful evidence of the contribution of the teacher librarian to teaching and learning is that when you directly assess the inquiry skills, you choose to boost content knowledge. Begin with an analysis of the content knowledge that the classroom teacher chose to make a difference. What you pair with that might come from your repertoire of the information literacy model you are using, of any area of the LIIITE Model, of an important soft skill, or of a skill from a school-wide initiative such as personalized learning. A few examples might help clarify what we mean:

- The classroom teacher wants the students to investigate a controversial issue and wants them to develop an essential question that they are truly interested in. You recognize this as the first step in any good inquiry model, so you need to just adopt the same objective. During the unit, both mentors work with the students in question development until they are satisfied that the students are off and running out of the gate. Both adults have examined each question and, while the students may change their questions as they proceed, they can probably modify their question as they go along and check with a mentor as that happens. Each of the mentors give each other a high five – 100% success rate.
- The same teacher complains during the planning session that the last time she taught this unit, the students kept making bad arguments to support their case because they had either had bad information or it was out of date. You as the teacher librarian recognize a second time an exact parallel to your own inquiry model, so you both work together to teach where to find and how to judge the quality of the information. In oral arguments and in the student's position papers, the classroom teacher is overjoyed with the difference in the outcome. Another high five.
- In a STEM project where students are to build a robot that does a useful task, both you and the classroom teacher take time out with the students on a regular basis to review the Design Thinking Model. One week during the unit, the students keep getting upset in their groups, and shouting matches erupt. You recognize that it is the perfect time to discuss the idea of failure alongside problem solving. Both mentors call a time out, and they have an in-depth discussion about ways to move forward without having to resort to a war of words and actions. This conversation happens several times over the time of the project, but in the Big Think, students admit that they were able to problem solve better this time than in the past. But there is still room for improvement. Your assessment of progress comes by way of observation and personal interviews. Another high five.

Successes of this kind happen when, during the planning process, a simple planning chart is used:

Teacher's Content Objective	Teacher Librarian's Supportive Process Skill	Joint assessment strategy to measure both.

The outcome will be the percentage of students who met or exceeded both mentor's objectives. These results are collected and reported across units of instruction, grade levels, and faculty members.

(Inquiry2) Demonstrate That You as the Teacher Librarian Have A Curriculum of Inquiry Ready to Embed in Co-taught Learning Experiences (Organization Level)

Get started in the building of a bank of video tutorials made by you and the students for each step of the inquiry process. This bank might contain:
- Lessons ready to embed in any learning experience as needed.
- Lessons at any grade level.
- Lessons that teach not only research skills, but also companion soft skills.
- Lessons for beginners and novices through experts.
- Lessons that might be in several languages needed by the students in the school.
- Lessons that can be taught with the classroom teacher jointly.
- Lessons that are video tutorials on the Virtual Learning Commons website for use 24/7.
- Lessons/video tutorials created by students for their peers.
- Lessons that utilize OERs.
- Lessons that grow in number and adapt over time.

(Inquiry3) Demonstrate That the Inquiry Curriculum Fits Easily into Whatever Learning Initiative Is Going on in the School (Organization Level)

One of the ways to ensure relevance of the library learning commons program is to demonstrate that it is helping to implement a school-wide learning initiative. So, whether the theme of professional development is personalized learning, critical thinking, design thinking, or project-based learning, you as the teacher librarian stand ready to push for success. The faculty knows that you will roll up your sleeves and collaborate with them on implementing the new initiative by adapting what you know and can do with that initiative. You ought to get immediate takers from a number of the faculty who are trying to make the transition. Examples might include:
- Projects that combine inquiry with critical thinking as a centerpiece.
- Projects that combine inquiry with mindfulness as a theme.

- Personalized learning projects controlled by a knowledge building website that tracks projects for individuals and groups and contains inquiry and personal assistance by both adults.
- Inquiry built into collaborative technologies that come available.

(Inquiry4) Do A Before/After Learning Journey Analysis with the Students (Learner Level; Teaching Unit Level)

Doing a before/after learning journey can not only help students refine their inquiry skills, but also document what difference the adult mentors made in the inquiry process. Here is a sample log to create:

- As soon as the learners, whether individuals or groups, understand the assignment, introduce them to a Google sheet
- In column A, they can record their name or a pseudonym if anonymity is desired. If working in groups, the group might all be in a single cell of the column.
- In Column B, ask the students to forecast their inquiry journey: First I/we will do this and then this and then this and then this until the end. You will need to teach them how to do a soft return so that they can have a list of steps and stay in the cell. Tell them not to press return/enter until everyone has finished. This way, they will not be able to read about each other's proposed journey.
- Have them all press return but immediately close the sheet and prevent them from viewing it throughout the actual project.
- After the project is over and the grades are in, do a reflective Big Think with them by opening the Google Sheet and, in Column C, describe their learning journey as it actually happened. They can compare what they thought they would do with what they actually did. Again, tell them not to press return until everyone has done their comparison. Then have them all press return to reveal their joint comparisons. Use this to discuss and think about the process of inquiry. What did we do? How could we all become better the next time we do this kind of project? What can the adults do to help? What can we as a group of learners do better?
- As adults, conference about the outcome in terms of content knowledge growth as will as the process skills and decide what you might do the next time such a project happens.
- Use this analysis in annual reports, professional development, or individual conferencing with teachers, department heads, and administrators.

(Inquiry5) Test the Impact of Separate "Grades" for Content Learning and Process Learning for a Co-taught Learning Experience (Learner Level)

What would happen if each learner received two grades for a learning experience: one for content learning and the other for process learning? How would they respond? Would it

make any difference? Would the students view the teacher librarian as an equal because they were getting a grade or part of a grade from that adult? Wonderings:

- What is the best way that both adults can use to share in assessment?
- How would two separate assessments be recorded and tallied?
- Are content and process worth equal points in an assessment?
- Is there any research that might help in this regard?
- What about the assessment of soft skills?
- What would the outcome be if there was one grade for both areas vs. one grade for each?
- What discussions about this might be candidates for professional development attention?

Other Measures to Consider

(Inquiry6) Research Logs: Writing and Learning About Research and About Me (Learner Level)

In measure Inquiry4, we recommended a brief before and after measure. In this one, we recommend a longer journaling of the inquiry experience.

In the Short Term:

In case you have not noticed, students spin their wheels during the research process so much during the time they think they have to devote to research, that they often grasp at straws when deadlines are looming. The goal of reflective practice would be to build an individual's efficiency (one of the definitions of information literacy).

Research logs provide a way for both the learner, the teacher, and the teacher librarian to peer into the world of research in a unique way so that coaching, guiding, and teaching all zero in on individual needs.

Have learners keep a log of their research with the rubric for the research project printed as a thumbnail on the log. Have the log accompany the final project and then score the log for the appropriate number of points to add to the student's total. For a teacher who has never experienced this type of logging, the teacher librarian would need to score the log and have discussions with the teacher until the teacher could score the logs and the library media specialist move to other projects with that teacher. Logs can be kept in notebooks, a personal blog, or a Google Doc that is only shared by the student with the adult mentors.

In the Long Term:

Whether you use notebooks or digital logs, have students save them across the school year as they do various inquiry projects. Sometime toward the end of the school year,

have students examine their research logs in chronological order and then try to answer the following question (this can be done by individuals or groups as appropriate):

> Am I making progress as an organized investigator and researcher over time?

A written reflection in their log might be a part of each student's reflection and self-assessment across the school year. Opening a group or whole class conversation would ask the students to project: So what? What's next?

During a report to faculty, administrators, or boards, show what percentage of learners claim to be making progress as organized investigators vs. your own assessment of their progress. What type of individual seems to be making the most progress? The least?

This measure is **direct evidence** at the **learner level**, the **teaching unit level** and the **organization level** and is a powerful predictor of the impact of information literacy on learning.

(Inquiry7) The Measurement of Individual Information Literacy Skills (Learner Level)

On the following pages, each step of a generic information literacy model has been listed with numerous suggestions for assessing whether a particular skill has been learned and applied correctly. Individual skills are best assessed at the time of use and then followed up as further opportunities to use those skills arise. The measures here constitute **direct evidence** that can be reported at the **learner level**, combined during a research project for a view from the **teaching unit level**, and by combining data across experiences begins to form a picture of progress at the **organization level.**

Questions and Wonders

Steps in Information Literacy	Ideas for Assessment
o Recognizes the need for information. o Formulates questions based on information needs. o Understands that great questions have often been the basis for advancement in many fields. o Understands the difference between a good and a poor question. o Predicts possible answers to the question formulated. o Revises questions as research proceeds. o Understands that answers often lead to new questions.	o Since children come to school naturally curious, we can recognize that curiosity as it arises and reward it. o Reward students who pursue sensible questions. o After teaching the difference between good and poor questions, have students develop questions for your scrutiny. o Teach the process of developing sensible questions and reward learners who go through the revision process until a "possible" query has been created. o Give rubric points for poor to good questions. o On personal research reflections, look for individuals who struggle with their questions and revise them in favor of better questions.

Finds and Sorts

Steps in Information Literacy	Ideas for Assessment
o Prelude 　▪ Recognizes that accurate and comprehensive information is the basis for intelligent decision-making. o Finding and Searching 　▪ Identifies a variety of potential sources of information. 　▪ Develops and uses successful strategies for locating information. 　▪ Accesses information efficiently and effectively. 　▪ Seeks information from diverse sources, contexts, disciplines, and cultures. o Sorting 　▪ Evaluates information critically and competently. 　▪ Determines accuracy, relevance, and comprehensiveness. 　▪ Selects information appropriate to the problem or question at hand. 　▪ Seeks information related to various dimensions of personal well being, such as career interests, community involvement, health matters, and recreational pursuits. 　▪ Pursues information related to personal interests. 　▪ Identifies inaccurate and misleading information.	o Finding information is the most often taught and tested information skill. Many check tests use a scavenger hunt approach varying the topic of each question or mini-search. A better solution is to test the topic being taught in the classroom – limiting teaching and assessment to the content at hand. The check test will not only assess, but will also be linked to content. For example, if children are researching animals, then all info lit. tests should be using that topic. Concentrating all information literacy instruction/assessment on the topic at hand will have carryover in building background knowledge and vocabulary. o As individuals become more sophisticated in finding skills, they should demonstrate their abilities as the topic switches from one discipline to another and becomes more complex across databases, catalogs, indexes, and the Internet. o Sorting information is not so often tested but has taken on immense importance. Using a pre-selected range of information sources, test an individual's ability to recognize any of the qualitative factors that are essential in the topic at hand. By "stacking the deck," you can control for level of sophistication. For example, students might have to arrange six pre-selected articles across an opinion spectrum. Again, these articles should reflect the topic at hand since the test itself will contribute to content knowledge.

Consumes and Absorbs (reading, viewing, and listening)

Steps in Information Literacy	Ideas for Assessment
o Appreciates literature and other creative expressions of information. o Is a competent and self-motivated reader. o Understands skimming and scanning through text structure. o Can pick out the main ideas from any form of media (text, video, lecture, digital) while reading, viewing, or listening. o Can read and study carefully to understand challenging text and ideas. o Can take notes of important ideas while reading, viewing, or listening.	o Use the reading log described on page 71 to assess how much and at what level the student is reading beyond the textbook. Reward reading of all types connected to the topic at hand since it will contribute to vocabulary and background knowledge. For example, on a history unit, reward historical fiction, non-fiction, videos seen, dramas connected to the period, reading original resources, looking at picture books about the period, reading accounts from differing cultural perspectives, the reading of original sources or biographies – the list seems endless. o There are many helps in the study skills literature for assessing skimming and scanning techniques and reading for the main idea. One easy way to see if students are picking up the important ideas is to have them use the text structure of a pre-selected article on the topic at hand to create an outline, a graphic organizer, or a marked-up version of the article with the main points highlighted. Individuals might make more progress if they compare their own work with that of others in a group and having them defend/adjust their work.

Thinks and Creates (Analysis)

Steps in Information Literacy	Ideas for Assessment
o Distinguishes among fact, point of view, and opinion. o Identifies inaccurate and misleading information. o Applies information in critical thinking and problem solving. o Organizes information for practical application (charts, graphs, concept mapping, timelines) o Can sort, compare, classify, and identify patterns and trends. o Recognizes cause and effect or trends. o Derives meaning from information presented creatively in a variety of formats. o Respects others' ideas and backgrounds and acknowledges their contribution. o Thinks outside the box.	o Use graphic organizer software not only for students to transform or summarize what they read, but to test what they read. o Test the ability of students to arrange data you supply (carefully selected) on the topic under study to create charts, graphs, timelines, or any other data analysis technique. By pre-selecting data, individuals can compare their work to that of others. o Reward creativity in analysis (unique ways to visualize data using the tools at hand). o Reward analysis when individuals spend the time to learn a new analytic tool and do it well (for example, the student learns a new graphing package and produces some clever new insight into data). o Reward students who can use the same data to chart varying interpretations depending on point of view, culture, or perspective. For example, students who can chart perspective of Arabs and Israelis over an issue to demonstrate perspective would be rewarded.

Summarizes and Concludes (Synthesis and decision making)

Steps in Information Literacy	Ideas for Assessment
o Integrates new information into one's own knowledge. o Experiences the "Ah Ha!" of learning when pieces of the puzzle come together. o Forms a point of view, opinion, conclusion, or supportable argument based on solid evidence. o Makes decisions or takes action based on the best information available.	o Reward students for being able to demonstrate how they systematically can use evidence to draw a conclusion or come to a position. o Reward students for being able to defend the positions they take and the conclusions they draw based on the evidence they have collected. o It is impossible to stick a thermometer in a mouth to see if an "Ah Ha!" has been experienced, but certainly praise can be used when signs of such a phenomenon occur. If an Ah Ha has occurred, however, an instant change in test or performance results will occur and can be noted and rewarded.

Communicates

Steps in Information Literacy	Ideas for Assessment
o Uses information accurately and creatively. o Designs, develops, and evaluates information products and solutions related to personal interests. o Develops creative products in a variety of formats. o Produces and communicates information and ideas in appropriate formats. o Shares knowledge with others. o Acknowledges others' contributions. o Respects intellectual property rights.	o Use a rubric or other point system to score a student product for the characteristics you have determined in advance (and for which students were informed in advance). o Using a rubric, have students do a self-evaluation of their product and presentation skill. o Reward the content of the presentation or product over the glitz. o Divide the content score of the presentation from the presentation skill/use of technology. o Reward creativity or unique presentation formats, technologies used over and above content factors but not in lieu of. That is, always award content points as the central element (thinking, learning, mastery). o Reward correct acknowledgement of other's intellectual property.

Reflects on Process and Product

Steps in Information Literacy	Ideas for Assessment
o Strives for excellence in information seeking and knowledge generation. o Assesses the quality of the process and products of personal information seeking. o Devises strategies for revising, improving, and updating self-generated knowledge.	o Long ago, Pitts and Stripling in their book *Brainstorms and Blueprints* had it right: students should be required to reflect and receive rewards for reflecting after each step of the research process. This can be done as a point system, rubric items, or just through reflective conversation. It was the most difficult thing they instituted with teenagers, but they never ceased trying. o Have students turn in a reflection with their research logs. o Use the technique described earlier of having students create their own information literacy model. o Ask students to reflect over time whether they are getting better at the research process.

Throughout:

Steps in Information Literacy	Ideas for Assessment

o   Group work
    ▪   Participates effectively in groups to pursue and generate information.
    ▪   Collaborates with others, both in person and through technologies, to identify information problems and to seek their solutions.
    ▪   Collaborates with others, both in person and through technologies, to design, develop, and evaluate information products and solutions.
o   Attitudes and behaviors
    ▪   Recognizes the importance of information to a democratic society.
    ▪   Respects the principle of equitable access to information.
    ▪   Practices ethical behavior in regard to information and information technology.
    ▪   Respects the principles of intellectual freedom.
    ▪   Uses information technology responsibly.
    ▪   Can follow the guidelines of an information literacy model to conduct a research project.
    ▪   Can develop control over self-learning by creating a personal information literacy model.
	o Many teachers give points for working effectively with groups. Much dislike of the group process occurs when one person does all the work and others get credit for it. Some say that having students rate each member of the group's contribution helps. Search for other ideas.
	o Punish plagiarism. However, teach students what it is and how to handle other's intellectual property.
	o Conference regularly with individuals and groups on how to be responsible users of information networks. Many set up instant punishments for infractions. But the best strategy is to build a community of "we all help keep it running." Track and report your program for doing just that.
	o Have students help in setting up rules for behavior while using technology. Be fair about punishing individuals who violate the rules.
	o Reward students who can argue both sides of an intellectual freedom case.
	o Reward students who are taking responsibility for their own learning as opposed to doing less or exactly what is expected of them.

(Inquiry8) **Tracking the Information Literacy Skills Taught (Teaching Unit Level; Organization Level)**

One of the challenges of integrating information literacy into teacher's units is that the curriculum will govern what skills are taught and when. Such an approach will produce a patchwork quilt of skills across the grade levels and across teachers. Is that worrisome? Not really if there is a steady stream of collaborative units all with integrated information skill components. Three methods of tracking are recommended here that might help look at patterns across the school to affect practice:

Track What's Taught

Two things could be tracked on a single columned sheet for each teacher during the year:
1. Units where the entire information literacy model was presented and practiced by the learners.
2. A checklist of individual skills integrated "just in time" as required by students to accomplish a learning task in the classroom or the LLC.

Such an approach would simply "let the chips fall where they may" and assume that sooner or later, regular integration will get around to the critical tasks at some time.

Track Against A Grade Level Matrix

Many states have continuums of information literacy skills that students should be taught at specified grade levels. Using this approach, the teacher librarian uses the target skills at a grade level to look for opportunities to integrate throughout the year. Planning with a grade level team across a year, this checklist would be used to analyze what has been taught and what is left to teach.

Use Computerized Tracking Software

At the end of each collaborative experience with a teacher, use computer software to track what was taught to whom, when, what content standards were achieved, what information literacy skills were mastered, and any other useful information such as teacher and grade level. Probably the easiest software to use is a Google Sheet or multiple sheets within the same sheet url.

No one way of tracking is recommended as superior; however, <u>not tracking</u> would be a disaster. Evidence-based practice requires tracking, assessing, and reporting if improvement is an important part of the program. Such tracking need not be time intensive, but it needs to be informative and should stimulate reflection.

(Inquiry9) Document Progress by Learners at All Ages in Creating Their Own Personal Learning Environment (Learner Level)

Introduced earlier in the chapter, the personalized learning environment consists of three distinct sections:

- A portal to the Internet that helps each person stay organized and exerts some control over what is being shoved by others into the face of every person, no matter the age.
- A personal learning network that links each person into topical websites, blogs, tutorials, and courses that are geared toward "learning what I want to learn."
- My portfolio that has two parts: what I am working on and so is private, and things that I want the world to know about me including my interests, passions, and products that I have created. It is the place to tell the world what I know and am able to do.

Such an intervention can be created on a personal smart phone, a table, or a computer. It can be constructed in the cloud so that it is available on any device I am using at the moment. For cell phones, screens of apps can be organized in the sections above. For tablets and computers, a program such as Symbaloo or some other app imitation software can suffice.

Both the classroom teacher and the teacher librarian can work with students across the school year to not only build their one PLE, but also to keep it maintained. Individuals can demonstrate what and how their own PLE is helping them, and the adults can get a sense over time of how many students are on track. Such information can be reported on annual reports as a strategy that helps every stay organized and thriving in the digital world.

In Summary

This chapter, like all others in the book, has provided a list of factors within information literacy that would be candidates for measurement. This list was followed by a variety of possible measures that might be done at the learner level, the teaching unit level, and the organization level.

The task of the teacher librarian is to decide aspects of the current information literacy program could be measured, what program goals should be instituted and measured, and the mix of measures that can be integrated into daily practice. The following evidence plan worksheet might help in making both measurement decisions but also might shape changes in the LLC program.

The worksheet is followed by a sample worksheet where a teacher librarian has decided first to test a pilot program of information literacy with a single teacher complete with an assessment strategy as a prelude to presenting an information literacy program to the entire faculty.

Information Literacy Evidence Plan

Detail in the appropriate box possible measures to be used in your information literacy program to measure its impact on achievement.

Goal:

	Learner Level	**Teaching Unit Level**	**Organization Level**
Direct Measures*			
Indirect Measures**			

*Direct measures would be those so close to actual learning that confidence in an impact could be inferred. We have no thermometers to stick in a learner's mouth to gauge actual learning, but direct measures might challenge doubters to prove <u>no</u> impact.
** Indirect measures provide evidence that actions set the stage for, provide an environment for, give support to, enable, help, give encouragement to, mark progress toward, make change in direct measures over time the probable stimulus.

Information Literacy Evidence Plan Sample

Goal: To demonstrate the integration of information literacy into one teacher's research agenda in order to serve as a pilot project for an information literacy initiative. Below are the measures that will be used to assess the impact on the teacher and the learners.

	Learner Level	**Teaching Unit Level**	**Organization Level**
Direct Measures*	▪ Integrate information literacy into three research projects taught collaboratively using increasingly complex skills with each succeeding unit. ▪ (InfoLit4) Use individual assessments of each stage of the research process. ▪ (InfoLit1) Assess the level of info lit. skills learning using rubric items integrated into the teacher's unit rubric. ▪ (InfoLit2)Assess the level of each learner in each of the test research units. Who succeeded? Why? Who failed? Why? Follow-up interviews and reflections by individuals may help. ▪ (InfoLit2) Are there any types of individuals who fail? What might be the causes? What could be changed in units two and three to increase an individual's chance at success?	▪ Document the time spent with the teacher in teaching the principles of information literacy. ▪ (InfoLit14) Document and reflect together on the process of integrating information literacy into instruction. How did we approach this integration? What changes in instructional approach had to be made? ▪ (InfoLit11) Document the change in instruction when the rubric contained both content and information literacy items. ▪ (InfoLit14) What is the teacher's perception of the impact of teaching students process before and after viewing assessment results at the learner level. ▪ (InfoLit14) Would this teacher be willing to continue working on both process and content after our experiment? Why or why not?	▪ (InfoLit21) How were administrators included in this experiment? ▪ (InfoLit21) What evidence is there that administrators came to understand what information literacy was? ▪ (InfoLit21) What support has been forthcoming from administrators during and after the experiment?
Indirect Measures**	▪ What support did the teacher and I have to give to those individual students who were struggling? ▪ Did technology "rise to the occasion" to support each individual?	▪ How did we modify the schedule of the LMC to accommodate this experiment? ▪ What changes in the LMC/classroom facilities did we make to accommodate this experiment? ▪ What arrangements were made for the extra time it took to handle this experiment both for the LMC staff and for the teacher?	▪ What changes would have to be made in the entire school schedule if this experiment were to be expanded to the faculty as a whole? ▪ How would the structure and size of the LMC staff have to be altered to handle a larger number of experiments? ▪ Are there any budget implications other than staffing that would need to be addressed? Professional development opportunities?

*Direct measures would be those so close to actual learning that confidence in an impact could be inferred. We have no thermometers to stick in a learner's mouth to gauge actual learning, but direct measures might challenge doubters to prove <u>no</u> impact.
** Indirect measures provide evidence that actions set the stage for, provide an environment for, give support to, enable, help, give encouragement to, mark progress toward, make change in direct measures over time the probable stimulus.

7

Instructional Designs That Boost Teaching and Learning

State of the Art

The instructional design of a learning experience is like constructing the structure of a home. Inside, there may be many different rooms where everything can happen for the classroom, the teacher, and the learners. Some structures have no windows because the learning design is so structured by the designer that everything the learner needs is present. No need to leave the building for anything. Such experiences are often known as direct instruction. Other designers build in various windows there the learners can reach out beyond the walls. Here the onus is on the learner to be more self-directed.

In this chapter, we recommend that instructional designs be co-taught by two adults and have a variety of approaches for the learners as we encourage them toward independent learners and lifelong learners. The two major designs we will recommend here suggest that, for the teacher librarian, flexible rooms be created where all the elements of the LIIITE model can be integrated as needed, rather than be sealed in concrete before the learning experience happens. In other words, we view instructional design as much of an art as it is a science, since our learners come with many different interests and abilities as well as experience.

For many years, we have recommended that the old bird units, so common in education, be discarded in favor of deep learning, coloperative learning, and collaborative intelligence. Yet, we find the following model so common and persistent across education:

This type of instructional design framework emphasizes what the individual student knows and how well they have distilled what information they acquired during the research process. This design also encourages such problems as last minute research projects, plagiarism, boring PowerPoints presentations, and concentration of regurgitation of what others know, not on knowledge creation.

We counter the bird unit inquiry practice with two major types of umbrella designs under which both the classroom teacher and the teacher librarian can work to create major fascinating instructional designs that strengthen what every learner and group of learners know and are able to do. The first model is the Umbrella Question Model followed by The Umbrella Creation Model.

The Umbrella Question: A Quick Sample of Co-teaching and How the Merger of the Classroom and Library Learning Commons Works

Also see the tutorial at https://sites.google.com/view/kbcumbrellaquestion/

The umbrella question model helps learners of all ages to explore three areas of learning as illustrated in The Successful Learner poster below. The learner develops personal expertise, experiences cooperative learning with peers, and, hopefully gets a taste of what

collaborative intelligence is, looks like, feels like, and its benefits in many innovations that are created today.

In the steps below, investigate the various steps of an umbrella questions learning experience where deepening content knowledge is supported by various types of process skills.

Phase 1: The prelude in which the classroom teacher and the teacher librarian announce/construct the umbrella question; build background knowledge with learners; build basic expertise in a topic/problem; promote essential hard and soft skills; encounter the basics or inquiry; using technology assists; and building some type of product to share with other learners in the class.

Step 1: Based on the classroom teacher's content expectations, the teacher librarian pulls from the repertoire of the LIIITE Model[1] and, using the Problems/possibilities jigsaw model,[2] the best strategies that will boost deep learning, creativity, and collaborative intelligence. Appropriate assessments by both adults are designed.

> Example: Based on the desire to help every student have a disaster plan for their family, the teacher librarian and the classroom teacher choose to incorporate the best of the information world and the instructional design needed to stimulate the

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[1] The LiiiTE Model poster and work place is at: https://sites.google.com/site/learningpostersgallery/the-liiite-model

[2] The Problems/Possibilities Jigsaw Models in the book is on of 16 instructional designs Loertscher, David V., Carol Koechlin, and Sandi Zwaan. *Beyond Bird Units! Thinking and Understanding in Information-Rich and Technology-Rich Environments*. Refresh Edition. Learning Commons Press, 2011. Available from: LMCSource.com

best result for every learner. Assessments will include both individual and group knowledge, hard and soft skills.

Step 2: The adults develop the umbrella question under which individual or small groups of students will concentrate their efforts.

Example: How can I and my family survive a particular disaster that might happen to me/us?

Step 3: The classroom teacher and teacher librarian introduce the umbrella question and give students a choice of what subtopics they would like to investigate either as an individual or as a small group.

Example: For your location, urban or rural, what kinds of disasters might we study? Fire, earthquake, shooting, flood, tornado, etc. Then form groups or individuals that want to study a particular disaster in depth. Scenario: Your family has just survived a _____ but you decide that many mistakes were made. You decide to make a new plan for that disaster just in case it happens again."

Step 4: Adults help students accomplish their investigations using a wide variety of information sources and technology that will help them learn what they need to learn and produce some sort of product the will help others in the class understand what they know and can do.

Example: Individuals and small groups work on the question: "What could I and my family do to survive _____ the best way possible? And, what kind of product would help the whole class survive the disaster I/we chose to study? The adults guide the students through the creation of some informative product for the family.

Fire

Shooting

Individual Disaster

Flood

Tornado

Earthquake
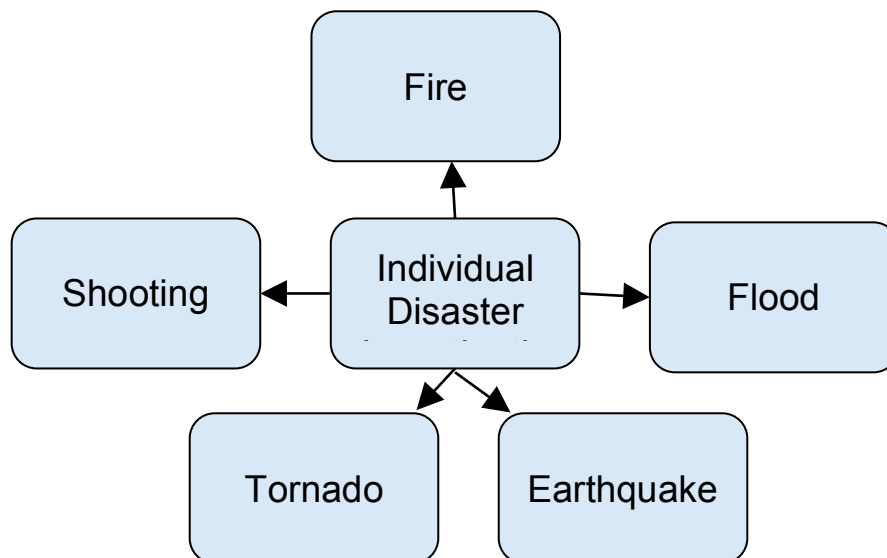
Phase 2: The Main Event in which deeper learning, more sophisticated inquiry and technology happen and the soft skills emphasized. At this level, the expertise developed in Phase 1 is brought to the table where a larger problem is encountered that requires a variety of expertise to solve, invent, create, share widely, act upon, or demonstrate. A higher level of both individual and collaborative is required; collaborative intelligence is required; design thinking, critical thinking, and creative thinking happen; and a more sophisticated product is developed and shared. A culminating event that demonstrates the combined knowledge and application is demonstrated, and a final Big Think reflects on the learning experience as a whole.

Step 6: The adults introduce a tougher question designed to enlarge every learner's understanding of the umbrella question and develop a second product designed to teach/demonstrate/invent using a more sophisticated product with a larger scope.

> Example: The class is jigsawed to include at least one person from each disaster studied. The question is: "What can I and my family do to survive any disaster that might happen to us?" A product is designed, such as a refrigerator poster, listing the disaster plan.
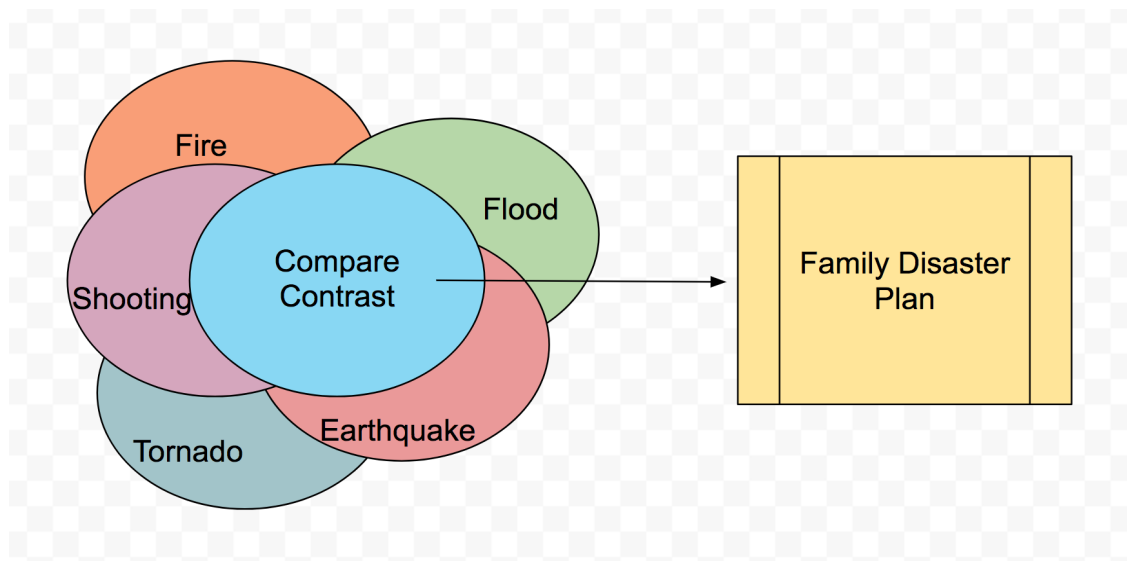
Step 7: Both adults and the learners build a culminating activity that will both further develop and demonstrate collaborative intelligence. Final assessments are made by both adult partners of their contribution to the learning experience.

> Example: The learners help plan a presentation/workshop for an upcoming parent's night where the parents will interact what the various groups are showcasing but then have a chance to sit down with their own child/teen to do some planning together. The adults do their final assessments and give both individuals and groups kudos or recommendations.

Step 8: After the learning experience concludes, the adults and learners engage in a Big Think[3] activity as a reflection of what they know as individuals and as a group; how they learned what they know and are able to do; and how they can become better the next time they engage in this type of learning experience together.

> Example: The adults find an expert in the community to come to the class for a reflection on the project, its topic, and what might have been both successful and could be improved. The expert can discuss with the class the ongoing efforts in the community to be prepared and solicit the learner's help if appropriate.

Step 9: Document, Archive; Share. After every such co-taught learning experience, document the percentage of learners who met or exceeded both adult's expectations. Take note of any actions, results, initiatives, benefits that happened as a result of the learning experience. Archive the learning experience as a record that can be used again or modified in the future. Share the success/challenge with administrators, colleagues, parents, and at conferences. Make such experiences documentary evidence for annual reports, local action research, and as tests of various school wide initiatives. Ask the questions: So what? What's next?

Variation on a Similar Theme

- For a career learning experience, the class might investigate various first responder occupations in their own community.
- Learners could investigate various animals nearing extinction and propose solutions.
- Issues facing the school, community, state, nation, and the globe work very well with an umbrella question.
- Causes of wars or historical problems can be studied in this fashion.
- The study of a theme or technique in literature can be studied effectively using an umbrella question.
- The challenge to find a solution to a problem in the school or community could be effectively studied this way.

Useful Tools

- Older Knowledge Building Center template:
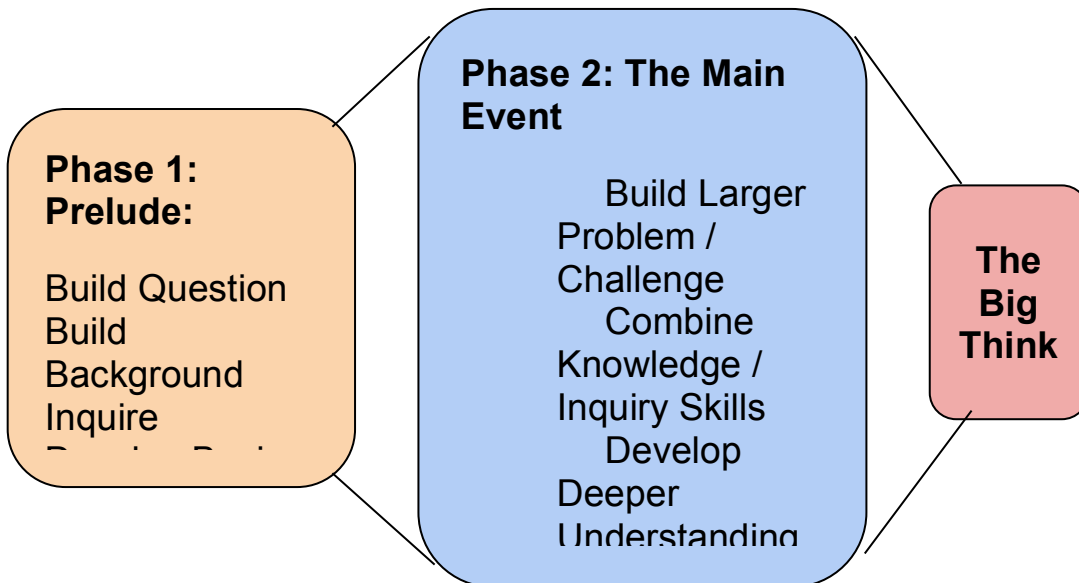 https://sites.google.com/site/knowledgebuildingcenter/

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[3]Inviting an expert to a Big Think Activity is one of nine strategies for reflection in the book: Loertscher, David V., Carol Koechlin, and Sandi Zwaan. *The Big Think: 9 Metacognative Stratagies That Make the End Just the Beginning of Learning*. Learning Commons Press, 2009. Available from LMCSource.com

- A KBC in Spanish: cnn:
  https://sites.google.com/site/knowldgebuildingcenterspanish/

- Elementary school KBC: https://sites.google.com/site/templatevlcelementary/

- Middle school KBC: https://sites.google.com/site/templatevlcmiddle/

- High school KBC: https://sites.google.com/site/templatevlchigh/
- KBC done in the new Google Sites:
  https://sites.google.com/s/0B0kdWYq2f0WvZlQ1UlNWN1BFdlk/p/0B0kdWYq2
  f0WvNFB3Vy1QM2ZJblE/edit

Model:

The Umbrella Question Learning Experience

Phase 1: Prelude:

Build Question
Build Background
Inquire

Phase 2: The Main Event

Build Larger Problem / Challenge
Combine Knowledge / Inquiry Skills
Develop Deeper Understanding

The Big Think

Notes About the Umbrella Question Model

It should be noted that this model uses the old bird unit inquiry as just phase one without the oral reports. The building of personal expertise gives each learner enough background knowledge to actively participate in a second round in which the various individual pieces are put together like a puzzle to solve a larger problem or quest. Because each individual or small group is working on a sub problem of a larger problem, hopefully the larger problem can be solved because of the varying expertise and knowledge of the jigsawed group.

To enable such in depth learning experiences, David Loertscher, along with Carol Koechlin and Sandi Zwan, published 18 Think Models, most of which work very well

under the Umbrella Question larger model. Their book: *Beyond Bird Units* (available at lmcsource.com) not only has the models, but also many examples of learning experiences that build much deeper learning than was done under the older bird unit inquiry practice.

In addition, Loertscher and Koechlin created Google sites known as Knowledge Building Centers to house such learning experiences. These templates are free to be used by anyone. They are designed to be co-taught by the classroom teacher and provide virtual rooms where the learners can do their work. Thus, the two adult mentors can create, store, and publicize what collaborative learning experiences are happening in the school.

Here are the urls that can lead you to these templates:
- Elementary School: https://sites.google.com/site/templatevlcelementary
- Middle School: https://sites.google.com/site/templatevlcmiddle/
- High School: https://sites.google.com/site/templatevlchigh

Software other than a Google Site can be used if both adult mentors can "own" and edit the site as a team and if the learners can all gain access to the various parts and pages of the learning experience and do their work as individuals, small groups, and as a large class group.

The Umbrella Creation: A Quick Tour of Project Based Learning, Design Thinking, and Creativity When There is a Merger of the Classroom, the Library Learning Commons, the Makerspace, and the Laboratory

Many educators want to give individual and groups of learners a chance to create, invent, or re-invent something they are passionate about. Some schools have genius hours where students get credit for a project of their own design. Still other schools have capstone projects done in the senior year of high school. Schools from elementary through high school might emphasize projects as one way of capturing student interests and self-directed learning. During this kind of learning experience, the learners might have a great variety of projects across many topics and interests. The one thing they have in common is the process that creative minds, designers, problem solvers, and inventors is the *process* they are going through to get from point A to B. Thus in this model, adult mentors emphasize process as a way of building content knowledge, outcomes, products, etc.

In genius hour courses, individual students or small groups of students meet regularly together to report their progress in their projects even though the topics might be very different. They try to examine ways to make substantial progress, next steps, skills they all need, help they require, and soft skills such as mindfulness, persistence, problem solving, design thinking, creative thinking. They will all need information, access to expertise, encouragement, and ways of dealing with failure.

The following poster created by Bill Derry, Leslie Preddy, and David Loertscher and known as the uTEC Maker Model is an illustration of the path that many individuals and groups take from being users of a system/technology into the tinkering phase, on into the stage of serious experimentation, and finally into building an actual creation. This model is illustrated below.
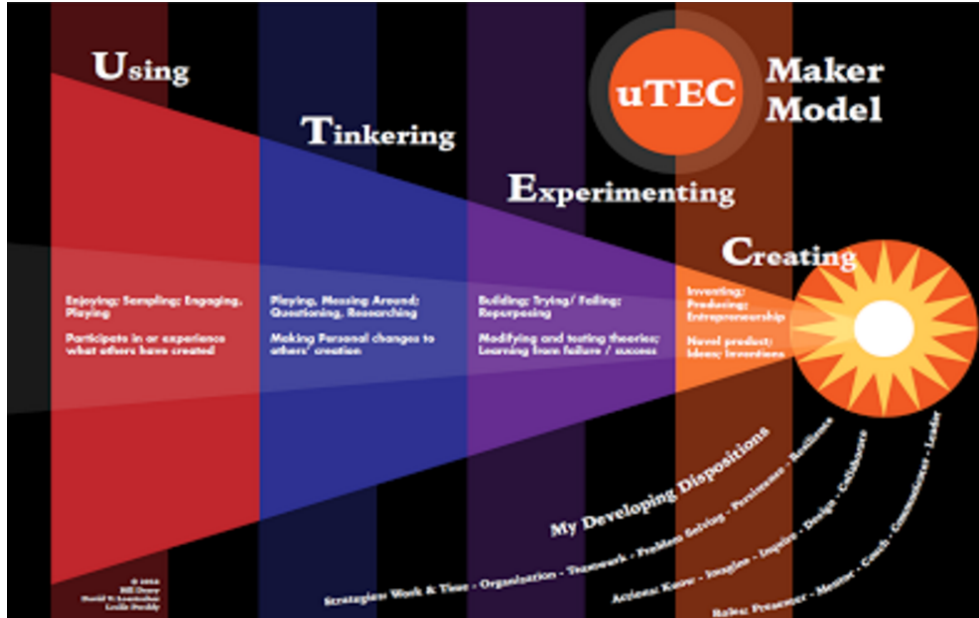
A second model worth thinking through is by Mitchel Resnick from his book *Lifelong Kindergarten: Cultivating Creativity Through Projects* (MIT Press, 2017). Read more about this model at: http://tinyurl.com/y8u8doee

Sample Umbrella Question: What might I/we create to make the world a better place for ourselves, family, school, community, state, or nation?

The following steps with an example might help adult mentors such as the classroom teacher and teacher librarian who have decided to work as co-mentors plan and execute such a learning experience.

Step 1: Generate interest among learners for self-directed projects, problems to solve, opportunities, or building a passion about personal interest. Here, the mentors work hard with many learners who claim no interest in anything or have little experience with self-directed learning opportunities.

>Example: Through discussion, videos, reports from peers, the mentors take advantage of significant issues, events, disasters, controversies, and examples to introduce the idea of "How can I/we make a difference in our world: personal, school, community, etc." The learners start complaining about some of the rules and problems they have at school and a list of those problems is made asking the students to think through something they might like to do that might solve some of the problems on the list. In a second meeting, the list is refined and students are invited to team up or decide to work individually on a problem they are interested in.

Step 2: Introduce or remind students about tools they might use to re-invent, re-create, or solve problems.

>The students are introduced to some models that have been used by experts to solve problems. For example, the Design Thinking Model is used in many organizations and business not only to solve problems in a community or organization, but also to invent new products and strategies to move forward. The Design Thinking Model is illustrated below.
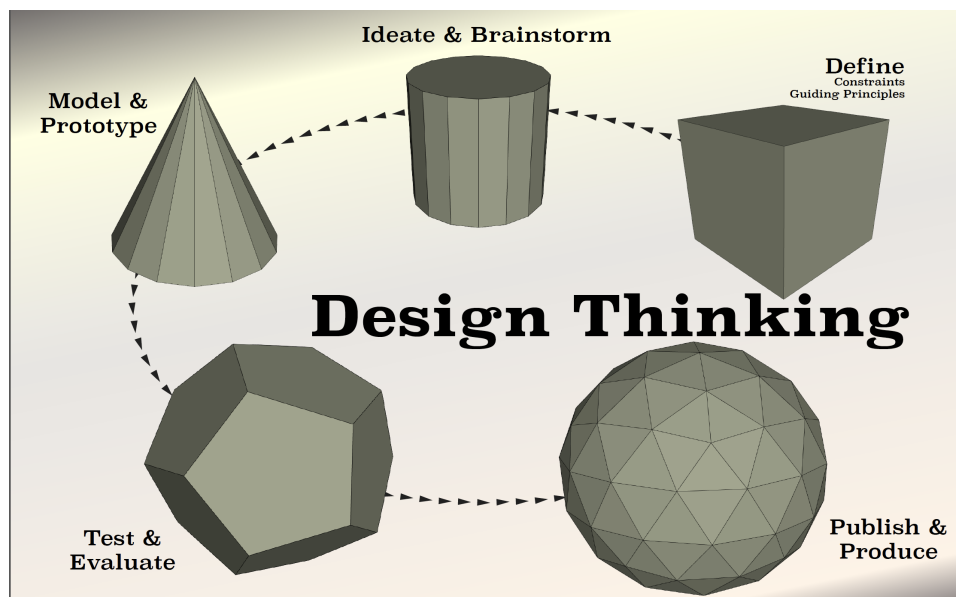
Another common older model is to do systems thinking where a person or group tries to invent a new way of doing something because the old way is no longer making a difference. The mentors can show how every system tries to change something, but there are also unintended consequences that might be worse than the way things were happening before. An example is the Flint, Michigan water engineers who were trying to save money by using river water instead of the more expensive source, and….well, what a disaster! Below is a think model that might be used to guide everyone through the project at hand. The learners are urged to use a model or invent one of their own that will help keep them on track during their project.

Think Model #14: Reinventing a Better Way
(Systems Analysis)

Why This Model?
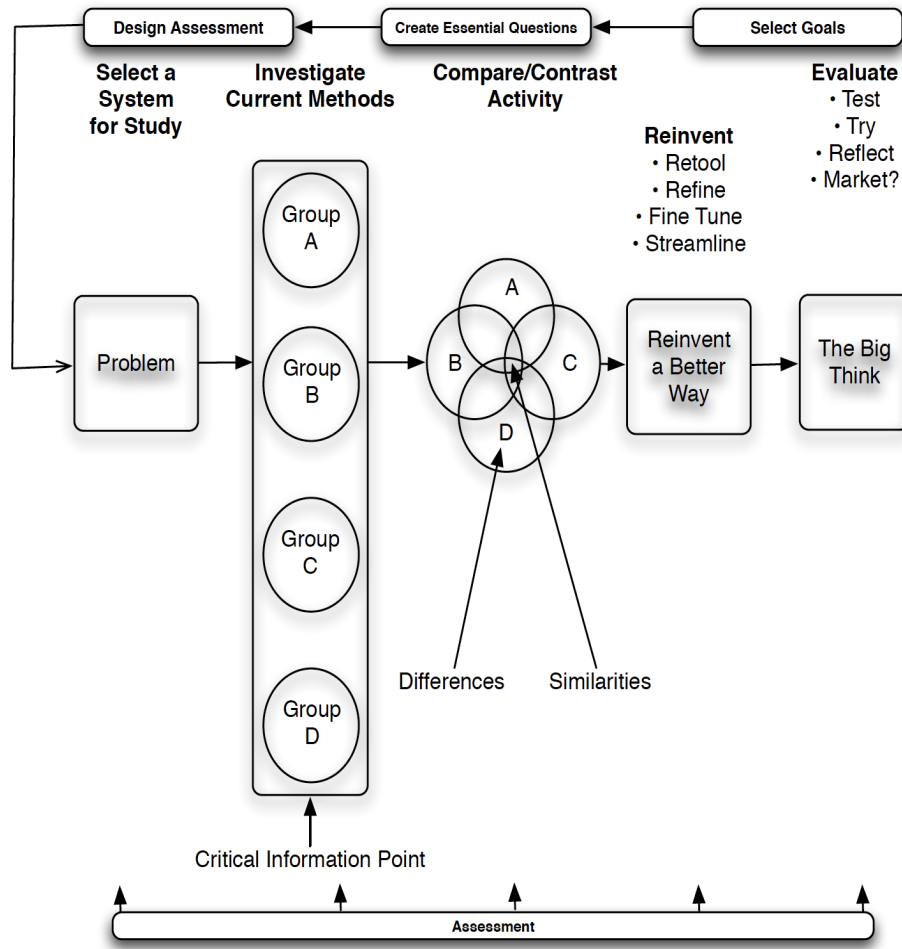
• Improve the efficiency of our economy
• Prepare for competitions (best ideas)
• Re-create products, marketing plans and patents
• Stimulate creativity
• Simulate authentic problems
• Build group work skills
• Save time, money, natural resources, energy

Possible Topics:

• New ways to handle school problems
• Living within a family's means
• Ways to save money, time, effort
• Create a labor-saving device
• Solving a pesky real-life problem

☆ **Life Skill: Creativity and invention stimulate progress.** ☆

Step 3: Guide individuals/groups through the formulation of a problem, question, project, or invention they are passionate about.

Here is where the first steps of inquiry kick in as learners try to build enough background knowledge in order to build a solid question or goals and objectives that will launch them into their project. For example, when there was a school shooting in a community nearby, everyone including the students were asking whether they were safe. But before they could get a start on that question, they needed all kinds of information about how visitors gain access to their school, district policies, state laws, and whether the current system was really enforced before they could develop a more focused question about the system of access at their school. They discovered that they needed not only to question the system that got visitors into the front door of the school, but they needed to look for other ways that someone might use to get in other doors, fences, or parts of the school property. The real question was more complex than they had thought about before.

Step 4: Help learners discover the knowledge and skills they will need in order to accomplish their task.

As students begin to attack their project or problem, they often discover that they do not know enough or have the skills they need to make any headway. In a real example from a middle school in Denver, Colorado, the principal visited a class where project-based learning was getting started and announced that the city had just called him wanting to do something about the stinky swamp at the edge of school property that neighbors were complaining about. The city was proposing that the swamp be paved over. So the principal asked the class what they thought. About half the class wanted to help conduct an investigation, but they soon discovered that they needed to know:

- The history of the swamp
- What made it stink
- City regulations about such matters including environmental concern
- What kind of expertise they would need from the community

Step 5: Have regular meetings/conferences to note progress and problems and to teach process skills.

In one private school in Vancouver, B.C., the adult mentors created 8 lessons about the process of inquiry that they taught during the duration of the project. The first time, these lessons followed in a very systematic way. The second time, they relaxed their direct teaching approach to help individuals or small groups "just in time." Reflecting back, they decided that the first approach was too rigid and the second too lax. They are regrouping to try to find the best mix of teaching process skills for their students.

Step 6: Clear the path and be an ombudsman for the difficulties learners might encounter.

For the stinky swamp project, the adult mentors, the principal, and the school board had to get involved to help the students when these middle schoolers discovered that the swamp was on the original bird migration path through Denver, and they were wanting to propose that the swamp be restored so that birds could use it again. All kinds of roadblocks had to be overcome by the adults to get such a restoration project underway.

Step 7: Celebrate successes and challenges overcome.

What seemed like just a stinky swamp problem turned into a major community project. They needed to restore the swamp, raise funds, do the work, get experts to help, and when the whole project was complete, there was a major community celebration that was planned by the students.

Step 8: Develop a culminating experience.

During the celebration of the new swamp, the students created various poster stations where other students in the school, parents, and community members could stop and listen to the young docents explain various parts of the project from beginning to end. The students rotated through the various poster stations because every student could explain any of the activities represented on the posters.

Step 9: Conduct a Big Think.

After the celebration was over, the students conducted a reflection seminar with their mentors and experts who had participated. What did we learn? How well did we do? If were were going to tackle some other project like this, what would we do differently? When can we expect our first birds? And, how will the swamp be tended so that it will be around for many years? Their discussion centered on the So What? and the What's Next?

Variations on a Theme

- Students could be challenged to invent a useful product in their library learning commons makerspace.
- Students could be challenged to build enough skill in art, music, literature, or other performance project to be a part of "listening lunches" in the library learning commons throughout the school year.
- STEM or STEAM project could lead to exhibits in a local MakerFaire.
- Students could be challenged to invent something to help various students with disabilities in their school. As an example, check out a major conference of young people bent on creativity: https://tinyurl.com/ybkvzhex

Notes on the Umbrella Creation Model

With the students as individuals and small groups working on a variety of unconnected projects, it may seem at first that such experiences are like trying to herd a bunch of cats. While the subject matter, such as history or social studies, might not be common across projects, the process of doing those projects is the common element. Thus, inquiry and design thinking supercede topical knowledge acquisition. For teacher librarians, their inquiry models take on added significance.

Regular meetings of the entire class not only think about the steps of inquiry, but also share just enough about their projects and problems to seek suggestions from everyone to solve some of their roadblocks and celebrate their success, or just prop everyone else up with encouragement.

Additional Support for Strong Instructional Designs

The U..S. Department of Education in cooperation with the Future Ready school initiative recognize the power of strong instructional designs. Such support can be used as one more mechanism to promotes deeper and more personalized learning for every child. Here is their rubric:

Personalized Student Learning

Personalized pathways for student learning through active and collaborative learning activities, which are aligned with standards, chosen through ongoing assessment of students' progress and preferences, and supported by the use and creation of rich content and robust tools

Dimension	Types of Supporting Evidence	Exemplary
Rigorous and Relevant Learning Outcomes	DR, GL, PS, EO	District leadership ensures a clearly defined set of district- and school-wide learning outcomes to guide instruction. Outcomes are defined in terms of competencies and align with the district's vision for Future Ready teaching and learning and state standards. The learning outcomes reflect the multidisciplinary nature of knowledge; prepare students for our participatory culture through attention to digital literacy and citizenship; and attend to general skills and dispositions, such as reflection, critical thinking, persistence, and grit.
Integrated Assessment	DR, GL, PS	District leadership puts policies into place that ensure that the district provides educators with the tools, professional development, and ongoing support to collect and analyze evidence of student learning on an ongoing basis. Evidence is diverse, including student and teacher observations and reflections, student work, formative and summative assessment results, and data from analytics embedded within learning activities and software. Analysis is aided by real-time availability of data and visualizations, such as information dashboards.
Pathways for Learning	DR, GL, PS, EO	District leadership puts policies into place to ensure that students have the opportunity to develop and demonstrate competencies aligned to shared learning outcomes through personalized sequences of learning activities that challenge them and reflect their interests and learning preferences. Activities are selected through a combination of student choice, teacher assignment, and adaptive recommendation by software, informed by assessment results. Completed activities are documented through a student profile or portfolio.
Powerful Learning Designs	ER, DR, GL, PS, EO	District leadership puts policies into place that ensure that students learn through a diverse set of activities. Designs combine self-directed learning and collaborative work. Students engage in active and multidisciplinary learning through projects and inquiries, often focused on genuine problems in their communities. Technology is integral to most designs, used daily within and beyond the classroom for collaboration, inquiry, and composition, as well as connecting with others around the world.

Dimension	Types of Supporting Evidence	Exemplary
Rich Learning Resources	DR, GL, PS	District leadership ensures that students and teachers have on-demand access to high-quality content and tools aligned with outcomes and activities but sufficiently diverse to allow choice. Content spans multiple media, integrates social learning, and includes open educational resources. Learning technology enables students to access content, conduct inquiry, collaborate, and create. The design of physical spaces for learning is appropriate to the design of learning activities.
New Teacher Roles	DR, GL, PS, EO	District leadership fosters a district culture in which teams of teachers are encouraged and supported to take leadership in developing learning outcomes, designs, pathways, and assessments, grounding their designs in collaborative analysis of evidence. They engage students, school and district leaders, and other stakeholders in the process and receive appropriate support, incentives, and recognition for this work. In the classroom, teachers serve as educational designers, coaches, and facilitators, guiding students through their personalized learning experiences.

See page 5-6 of: Characteristics of Future Ready Leadership A Research Synthesis U.S. Department of Education, 2017 at: https://tinyurl.com/ydfefx7f or https://tech.ed.gov/files/2015/12/Characteristics-of-Future-Ready-Leadership.pdf

Central Measures to Consider

(Design1) Document Each Transformed instructional Design and Compare it to the Old Method (Teaching Unit level)

Many common instructional designs used by classroom teachers get old and tired and often don't fit the new crop of learners about to begin a new quest. Using the models recommended above, the new design is much more likely to take advantage of the rich information and technology of the library learning commons and elicit much deeper learning, not to mention the addition of a second adult mentor.

In a report, describe the old method and compare it to the new instructional design. Such a report need not be lengthy, but it can point to the knowledge building center used and part of the Virtual Learning Commons, and it can point to the strengths of the new design. If each new design is archived, what you are creating is a pattern of interventions every time you are given the opportunity to partner. It becomes your portfolio. Perhaps the easiest way to track these experiences is to have a public blog or at least one that reaches both the faculty and the administration. If teacher librarians encourage the adoption of such tools and assist in the construction of collaborative spaces, this needs to be documented along with an examination of the resulting collaboration by the learners. Observe what happens during group problem solving and critical thinking as the learners try to assemble a robot to compete across schools or as they grapple with political or

social justice issues. Is every learner engaged? What have the adult mentors done to encourage and teach this behavior as part of the total learning experience? Again, blog posts by both partners can reflect on what they embed and the outcome, and perhaps they will have suggestions to share during professional learning experiences with their colleagues. Can you document the change from a few learners in the class doing most of the group work to almost every learner doing their share that leads to better outcomes? We do not know of any paper and pencil test that would help, but observation and mentoring over time will be powerful indicators of success.

(Design2) **Document Both Types of Umbrella Experiences and Contrast the Difference They Make with Learners (Learner Level, Teaching Unit Level)**

Document this one from the perspective of the learner. What do they report they experience when doing umbrella questions and umbrella creation? As a prelude to the Big Think, ask them to write a paragraph or two describing their learning journey. This could be done in a Google sheet all at the same time. Ask the learners to create a pseudonym in the cells in column A and then in the cell to the right, write their description. Tell them NOT to press enter or return until you signal them to do so. Then, when you give the signal, everyone's answer will appear. Use these answers to stimulate the discussion during the Big Think metacognitive reflection about the learning experience as a whole. If the grades are already in, you might get some pretty honest accounts worth analyzing and reporting. After the Big Think, you might ask the students to go back into the Google sheet and in Column C write a final paragraph about the idea of So what? and What's next?

(Design3) **Document the Contrast Between Individual Expertise, Cooperative Group Work, and Collaborative intelligence (Learner Level)**

Many industries and careers use groups and teams to accomplish the work of the organization, but schooling often rewards only the expertise of the individual. Group work is a common strategy used by teachers for various tasks, but often, these groups end up with one or two eager beavers who do all the work and the rest of the group sits back and hopes for a good grade.

To change this pattern and help young people learn how to work effectivity in a group and together develop new ideas or solutions to problems that require the best combined thinking or collaborative intelligence as we name that experience. The use of many of today's collaborative computer software can be utilized to help educate all the learners how each individual comes to the table with some expertise that is then shared in ways that advance the outcome that would not be possible with a single mind. More on this in the chapter on technology. The Google suite of tools is one of the best examples in the

docs, the sheets, the drawings, the sites, and also in a variety of other tools. Here, each learner can be identified by their contribution so that collaboration is a natural and can be monitored by the adult mentors.

(Design4) Document the Rise of Learner Motivation, Soft Skills, and Content Knowledge as a Result of Design Changes (Learner Level)

Many learners face a common task when approaching a new unit of study. Here is the topic; here are the four assignments with absolute deadlines; get started; don't forget to check the rubrics. Boring! Last minute rushes. Stuff short term memory, forget most of it. Content management systems are often structured in this top down way. An example is Google Classroom where the learner meets a new unit with a list of assignments and deadlines that will be enforced. To get around this top down structure and encourage learners to be more engaged and self-directed learners, the adult mentors have to consciously trick the system into a different approach.

If learners are allowed to participate in a project or problem and the result is something real and interesting, then the design that follows needs some flexibility in order to personalize both what individuals and groups are to learn and do. When this happens, the adult mentors start to notice changes in learner behavior toward more of the soft skills. In a top down content management system, our experience is to just trick the system by including a url that leads the learner outside the directive structure into a collaborative environment known as a knowledge building center.

Here again, observation of learner behavior and mentoring by both adults can be documented. A comparison can be made between top-down learning experiences and more constructivist experiences. Often these changes will match school initiatives to improve teaching and learning across the school. Again a blog posting is a good place to describe and compare learner behaviors.

(Design5) Document Over Time the Impact of the Big Think Episodes on the Design of Learning Experiences (Teaching Unit Level; Organization Level)

The concept of The Big Think metacognitive activity comes from a book by David Loertscher and Carol Koechlin entitled *The Big Think* (available from LMCSource). Just like coaches and their players watch the video of the game after it is played, the adult mentors and students take a look back at a learning experience. This happens after the grades are in – you can't replay the game that is in that video. Likewise, we are getting our heads together as adults and learners to think about what we know as individuals and as a group; how we learned what we know; and how we can get better the next time this type of learning experience happens. If we don't watch the video of the game, we are sure

to make the same mistakes at next week's game – the same thing will happen in the next learning experience – but we can get better every time we play/inquire and by school year's end, we can be top notch!

The Big Think book outlines nine different ideas for how to conduct a Big Think, ranging from including an expert to simple discussions, but the main point is that the time taken to do this kind of metacognitive activity is worth every minute because we have to keep getting better and more sophisticated over time. Learners can be asked to write short pieces during the Big Think, and the adults can keep notes that will stimulate changes needed to make in future learning experience instructional designs.

(Design6) Document the Role Changes That Happen for Both the Classroom Teachers and the Teacher Librarian Because of Instructional Design Changes (Organization Level)

Classroom teachers who have taught in their own isolated kingdom often have difficulty in adapting to the idea of partnering with a co-equal adult who may have a different set of ideas about teaching and learning. For other teachers who are more risk takers, the idea of partnering may be very welcome. These individuals are flexible and are not threatened by different ideas and strategies. They are willing to try different ideas and have good communication skills. Eager beaver teacher librarians who are very excited with their big bag of fresh ideas and their desire to change the traditional library into a library learning commons. However, many seem to meet a brick wall of resistance from classroom teachers who are quite happy doing what they have always done. Our suggestion has always been to find one or several teachers on the faculty who are willing to experiment and go for it. A few highly successful experiences with co-teaching, and suddenly that hole in the dike starts to widen – hopefully to a raging torrent.

We fondly remember such a successful teacher librarian in an elementary school where the library was at the center of the building and there were no walls between the library and the classrooms. Our librarian was more than busy and asked our advice. We recommended a flagpole at the center of the library. When overwhelmed, the librarian would raise the flag and that was the signal to everyone that she needed a break to catch her breath. It worked. And she did not burn out.

School administrators play a key role in seing that co-teaching is a desirable move forward. They can encourage co-teaching, praise the results in faculty meetings, and create planning time so that the transformation has a chance to succeed. We have interviewed a number of administrators who realize that the teacher librarian is a key ally in promoting a schoolwide initiative. In such cases, administrators don't just push money at the teacher librarian and then leave them alone. Rather, they work in tandem to make the library learning commons a central element of school success.

Documenting role changes happens on a case by case basis and sometimes on a department by department transformation. Keep notes. Track learning experiences that

have embraced new instructional designs. Try to figure out what works with different kinds of teachers. Praise the early adopters and invite others to examine the results and even spend time talking to students about "that class that went so well." Success breeds success. On one survey, a teacher complained that she wished the teacher librarian could be available for every learning experience, but that the competition for her attention and time was fierce.

Keeping a simple log where such behavior changes are noted and then reporting progress each month to the administrator is a key way to note progress and plan to keep rolling. It all adds up over time, and that is the documentation you want to keep, report, and showcase.

(Design7) Document the Sophistication Level of Learning Experiences Across Time When instructional Designs Improve (Organization Level)

If a common instructional design in your school is: choose a topic, do research, create a product, make an oral presentation, get your grade, then there is a real opportunity to make a difference by improving the design. The important thing to document is what happens in Mr. Smith's class when we do three of our co-taught experiences over the school year. Document how each time you get the opportunity the expectations for the students riise as they get used to working in a very righ information and technology world. This can happen becasue before a second, third, or fourth experience, both adult mentors are reviewing the results of The Big Think from the previous time. Remember, we decided that we would not make these mistakes again – things are going to be a bit tougher this time becasue you are getting better and better as investigators and creators.

Documenting this means that for each learning experience with the same group of learners, you record the percentage of students who were able to meet or exceed both adult's expectations. If you accompany this success rate with evidence that the stakes rose for each experience, you are demonstrating the power of sophistication over time.

(Design8) Create a Museum of Transformed Learning Experiences on the Virtual Learning Commons LLC Website (Teaching Unit Level; Organization Level)

Most teacher librarians have a website where they announce things and give helps. The Virtual Learning Commons is a collaborative virtual learning website that can and should be the virtual learning hub of the school. You can get ideas for the creation of such a space from the Loertscher/Koechlin book *The Virtual Learning Commons* (available from LMCSource). For instructional designs, if you create a museum of partnered learning experiences with links to the Knowledge Building Centers used, you have a track record that you can use the next time teachers do that same unit, but you also have a built in list

that can be reported to administrators and boards. It is quite easy to do a compare/contrast by creating a simple Google Sheet where in one column is a short description of the OLD METHOD and in the next column, THE REDESIGNED UNIT, with a brief description and link to the museum entry

(Design9) **Tell Stories That Compare the Old Method to the New Instructional Design (Teaching Unit Level; Organization Level)**

Tell stories and more stories – elevator speeches to videos about old and new designs that made a difference. Ask students to create video stories that describe the unique features of a redesigned exploration. If you have such a bank of stories available that you are ready to share, you will find that administrators who know about these stories will tell them in principal's meetings and board meetings, and in conferences with parents and speeches they give. You don't get noticed without stories to tell.

Administrators will be particularly interested in stories that further their own schoolwide agenda. They might describe how technology was used in a new design that really boosted deep understanding. They might describe an experience where soft skills were being emphasized and how that design change made a difference in student engagement. They might give examples of designs that increased the amount of personalized learning across the school. On and on and on. They are going to tell stories and they might as well be retelling yours, particularly if they were invited to pieces and parts of the unit.

In Conclusion

This chapter introduced two major types of learning experience designs that strengthen teaching and learning in the LLC and across the school. By lifting traditional models into more sophisticated designs, the differences in deep learning and creativity should become the center focus of learning experiences in the LLC. The various micro documentation of such experiences provides the teacher librarian with a track record of embedding the concept of the LLC into action. For administrators who are trying to improve such initiatives such as personalized learning or critical thinking, the LLC becomes the laboratory of experimentation where risk taking is encouraged across the faculty and everyone learns better teaching methods.

8 Technology That Boosts Teaching and Learning
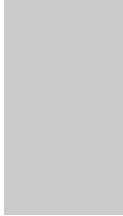
State of the Art

So much money, so much time, and so much effort has been made to equip the nation's school with technology, yet so many questions remain. Never has a tool of change come to education with higher expectations and more money attached. In times of economic downturn, the volume of capital often slows but not the expectations.

Numerous national organizations, government bodies, and school districts have set up expectations for this technology and it is wise to check them out as foundational documents to guide both vision and implementation. Check out standards from ISTE, ASCD, and AASL for starters.

One such recent document published in 2017 by the U.S. Government is shown below. See: Characteristics of Future Ready Leadership: A Research Synthesis, U.S. DEPARTMENT OF EDUCATION, 2017 at: https://tinyurl.com/ydfefx7f. Below is their section about the expectation for a robust infrastructure.

Robust Infrastructure

Equitable access to next-generation bandwidth, wireless, hardware, and devices, managed by support personnel for reliable use—both inside and outside of school

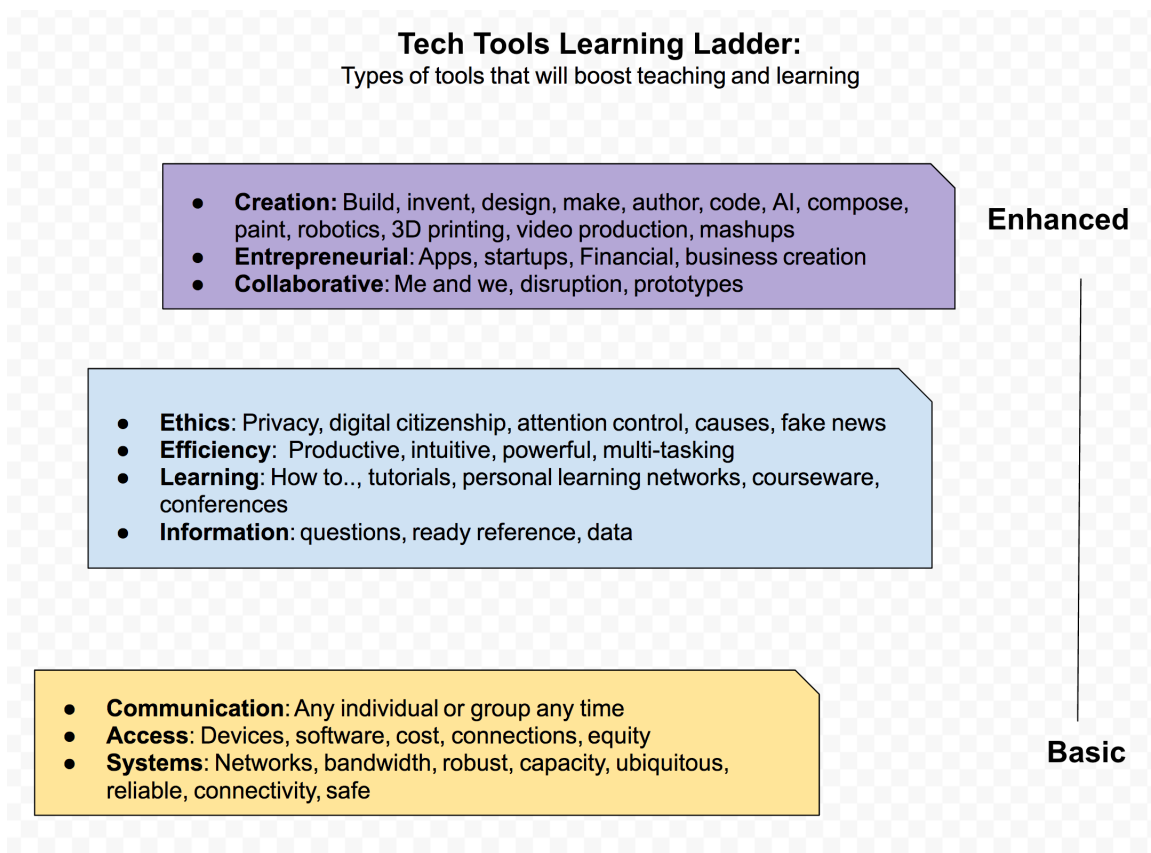| Dimension	Types of Supporting Evidence	Exemplary
Connectivity and Capacity	DR, GL, PS, EO	District leadership ensures at least one gigabit per second (Gbps) per 1,000 students and staff for their connection to the Internet service provider and at least 10 Gbps per 1,000 students and staff for connections from the district to each school and among schools. The network allows for dependable simultaneous connectivity and access to varied digital learning tools and online resources. Technology plans include hardware to support the connectivity and capacity. Equipment, such as servers, switches, and access points, are well maintained with proper electrical, heating, cooling, and ventilation systems. Vendors are vetted as reliable, cost-effective partners.
Digital Devices	DR, GL, PS, EO	All teachers, students, and administrators have access to digital devices from the district that are equipped with the proper software, hardware, and Internet connectivity for Future Ready teaching, leading, and learning on a daily basis. Students are allowed to use their own devices to support learning.
Software and Systems for Teaching and Learning	GL, PS, EO	District leadership oversees the purchase and maintenance of up-to-date software for Future Ready teaching, leading, and learning (e.g., learning management system, e-portfolio system, assessment system, portal, learning object repository, and collaborative tools) on all district digital devices. Students and teachers have in-school access to social media tools that support learning, which is enabled by the district leadership's engagement of all stakeholders to obtain their agreement on acceptable use.
Administrative Data Systems	GL, PS, EO	District leadership oversees the purchase and maintenance of up-to-date administrative software (e.g., student information, human resources, financial, and assessment data systems), which allow for data analysis and seamless integration across systems, including with teaching and learning systems.
Technology Personnel	DR, GL, PS, EO	District leadership communicates to all members of the school community how to access timely, knowledgeable support to handle their technical needs. A team of full-time, qualified information technology professionals of a size commensurate to the number of students and staff they serve is available to answer questions, troubleshoot problems, and monitor networks.
Out-of-School Access	DR, GL, PS	District leadership is committed to providing ubiquitous, 24/7 connectivity for all students within the district through community partnerships, after-hours computer labs, one-to-one device programs, or other models, which allow students to have the same access out-of-school as they have in school.

The expectations for every school and district are substantial in this document and are probably met by only a few at this point. Nevertheless, the infrastructure is vital if any sort of contribution to teaching and learning is to happen.

In this state of the art essay, we will look at the contribution of technology to teaching and learning in four ways as a continuum of value:
- What tools are available using the Tech Tools Learning Ladder model
- How to use technology to make a difference using the SAMR model
- The Purposes for technology use using the LIIITE model
- And then asking the So what? question using micro documentation to measure impact on teaching and learning

What Tools are Available Using the Tech Tools Learning Ladder Model?

In looking at the broad range of tools out there, this author has constructed a model that might help schools and districts position technology for success. This model is pictured below, and you can also see it at: https://tinyurl.com/yas65fd2

Tech Tools Learning Ladder:
Types of tools that will boost teaching and learning

- **Creation:** Build, invent, design, make, author, code, AI, compose, paint, robotics, 3D printing, video production, mashups
- **Entrepreneurial**: Apps, startups, Financial, business creation
- **Collaborative**: Me and we, disruption, prototypes

Enhanced

- **Ethics**: Privacy, digital citizenship, attention control, causes, fake news
- **Efficiency**: Productive, intuitive, powerful, multi-tasking
- **Learning**: How to.., tutorials, personal learning networks, courseware, conferences
- **Information**: questions, ready reference, data

- **Communication**: Any individual or group any time
- **Access**: Devices, software, cost, connections, equity
- **Systems**: Networks, bandwidth, robust, capacity, ubiquitous, reliable, connectivity, safe

Basic

The central idea of this model is that the bottom three infrastructure tech tools create the possibilities for the intermediate tools in the center and also push up the opportunities at the top of the model. The more robust the infrastructure, the more possibilities for learning and creation open up to both teachers and learners of all ages. If there is a disruption of service in the infrastructure, the list of tools above crash. On the other hand, the more robust the infrastructure, the more complex the tools can be up the ladder. The challenge, of course, is to develop a repertoire of tools so that in a given learning

experience, various tools can be selected and used to further the goals and objectives of that learning experience. All tools are not created equal, and they keep evolving. Some are free, others fee as entrepreneurs try to capture an audience in the educational market. The larger your repertoire, the more valuable you are in the school community. And one way to keep abreast is to surround yourself as an adult with a group of youngsters or teens who are tech savvy and love to share what they know and test out the various tools that become available.

Perhaps some examples of the various levels of the model might help all of us as we categorize the possible tools that might be used effectively.

The Basic Three Infrastructure Tools

- **Communication:** Any individual or group any time
- **Access**: Devices, software, cost, connections, equity
- **Systems**: Networks, bandwidth, robust, capacity, ubiquitous, reliable, connectivity, safe

You may not know all the technical details of the networks that are in place in your school or district, but you definitely know whether they work and how robust they are, and any student can tell you about the reliability and access available to them. They will expect to communicate freely, and if denied by the school, they will figure out how to use their various social media tools all day every day no matter what rules are in place.

As a teacher librarian, you can be the student's advocate because they are rarely consulted and never asked to come to the table as new systems are considered. While the school may provide devices, they need to be current and usable not only at school, but also at home, and Internet connection is an equity problem that everyone needs to work around.

We prefer tools such as the Google Suite of tools that will work across the school and some of the tools can be used offline when the user does not have an Internet connect available. The technology department needs to have the attitude that their job is to open the networks coupled with a digital citizenship program so that the work of teaching and learning can flourish. It's called customer service and satisfaction. The author remembers a story from one parent who saw the Superintendent of schools at church and asked why their child had such trouble using the school networks. After listening to the story, the Superintendent promised to do something about it. Advocacy helps. And it is never ending. Don't give into the argument of can't, can't, can't. The negativity is often more of a smoke screen than supportable by the facts. Do we always have to make a one-size-fits-all network structure? This author has several sons who are very tech savvy that keep me in the know, and I am going to know enough to have an intelligent conversation with the best of the tech experts. A word to the wise:

The Intermedia Set of Tech Tools

- **Ethics**: Privacy, digital citizenship, attention control, causes, fake news
- **Efficiency**: Productive, intuitive, powerful, multi-tasking
- **Learning**: How to…, tutorials, personal learning networks, courseware, conferences
- **Information**: questions, ready reference, data

Starting at the bottom, we all are becoming addicted to information tools whether it is to find out what the weather is, where to get the closest pizza, to get a list of the presidents of the U.S. or a copy of the U.S. Constitution. We want a ready reference librarian in the palm of our hand or a robot at home that will answer our questions and do our commands. I use Siri. What do you use? What apps do your students use to get info? I just wish Siri was more accurate. And, by the way, Wikipedia is here to stay, but good librarians know how to compete.

As far as learning is concerned, it is said that you can learn almost anything you need to learn on the Internet. From tutorials like Kahn Academy to YouTube, the open educational resources out there are incredible and free. Schools, however often invest in content management systems, such as Schoology or Canvass, or in Google Classroom to provide the platforms needed to deliver content, assignments, and assessment systems. Most of these are top-down systems and very directive since they presume traditional teacher-directed learning. While the use of such systems is often mandated, you can often trick the system by sending the students via links out to something like a Google Site where much more learner-centered and collaborative experiences can occur. This author has been tricking systems for a decade and finds that many disruptions are possible even through system designers think otherwise.

One thing we can demand of any of the tools we adopt is that they can help us become more productive and do more in less time and of higher quality than manual systems. Tools that provide more efficiency appear all the time and rightly replace older apps that don't quite keep up with what we need. Resistance to such new tools, however, can often be a stumbling block because adults often prefer to do their work that same old way and their students are so far out of front of them that conflict arises. Do we need paper any more? Can we use the cloud? As the tools get more sophisticated we all need to be more sophisticated and willing to make progress. How long would an engineer keep a job that relied on slide rules? Are we going back to typewriters and carbon paper? How often do you consult a printed map to find your doctor's office? Ah, those were the glorious days! Sorry, they're gone – get over it. Saving our student's time is just as important as saving our own.

With all the progress in tech tools, so have the choices, the behavioral choices, grown for the young people. Are we surprised that they make more mistakes? Get into trouble? Cheat? Text when they should be listening? I always try to think that if the kids are misbehaving on the tech devices and systems, it is an adult problem. We teach them to cross the street safely; we need to teach them how to be great citizens of the global

networks. Is it possible to learn how to be a contributor to life and living rather than be destructive, a hacker, or try to cut and lip our way to get along rather than developing personal expertise? What epitaph do we want on our tombstone? He discovered a cure for cancer; or he spent his life hacking and tearing down? Adults often think that it is their job to control every keystroke kids make. Perhaps a better plan would be to have them help develop good citizenship roles and behaviors.

Suppose after a research paper assignment, and as a part of The Big Think after the grades were all in, that we took off the authorship designations of the paper produced and had the class run a paper through plagiarism software. Then they could compare and contrast what they find across all papers. What conversations could we have? What problems could we solve? What ethics could we discuss? What opportunities to be our own thinkers and creators could we examine?

The Top Tier Tech Tools

- **Creation**: Build, invent, design, make, author, code, AI, compose, paint, robotics, 3D printing, video production, mashups
- **Entrepreneurial**: Apps, startups, Financial, business creation
- **Collaborative**: Me and we, disruption, prototypes

The top tier of tech tools puts the possibilities of the creation of knowledge as a major contribution that technology can make to teaching and learning. We say that the concept of the library learning commons includes not just the consumption of knowledge from whatever resources we provide access to, but also the opportunity to create knowledge.

As we look at global problem solving, inventions, and creativity and then at the contributions of young people today, we see young entrepreneurs, inventors, and makers doing incredible things. There are Mouse Squads in schools 3D printing artificial limbs, international robotics competitions, U.S. President medals being given to teens, and children setting up businesses to help various causes that are spotlighted on the evening news.

There are a plethora of tools that encourage creativity, and if the teacher librarian captures these tools as a part of the virtual learning commons, then the possibilities and potential for each young person expands.

A good place to start is to acquire collaborative tools that allow for group invention, design, and creation. A basic set of the Google Suite that allows multiple people to be working in real time. I do not know who at Google came up with the collaborative Google Doc software, but it was an invention that changed the world for every young person. Used to its potential, collaborative intelligence begins to emerge as various individuals contribute their expertise and then a whole begins to emerge as a sum of the parts. Thus, collaboration is one of the criteria for selecting almost any new tech tool. Can both individuals and groups work together to build, construct, think, and do?

As indicated by the log list of possible tech tools under the idea of creation, creativity can be a major program thrust of the library learning commons, and it can appear to be fun and a great challenge by the youth. Start with a few tools such as Google Draw or Animotoor, a comic book creator, fan fiction on a Google Doc, Garage Band, or a plethora of other tools that beg their users to create something without the need for lengthy tutorials. Have students help construct a virtual makerspace where everyone can connect to these types of tools. An example of a virtual makerspace can be seen at: https://www.symbaloo.com/mix/virtualmakerspace

How to Use Technology to Make a Difference Using the SAMR Model

When Dr. Reuben Puentadora created the SAMR model, he began to change the thinking of many educators away from just hooking them up and turning it on and using it to just do the same old things into a movement to do something with technology that actually made a difference in teaching and learning. Just one rendition of the model appears below:
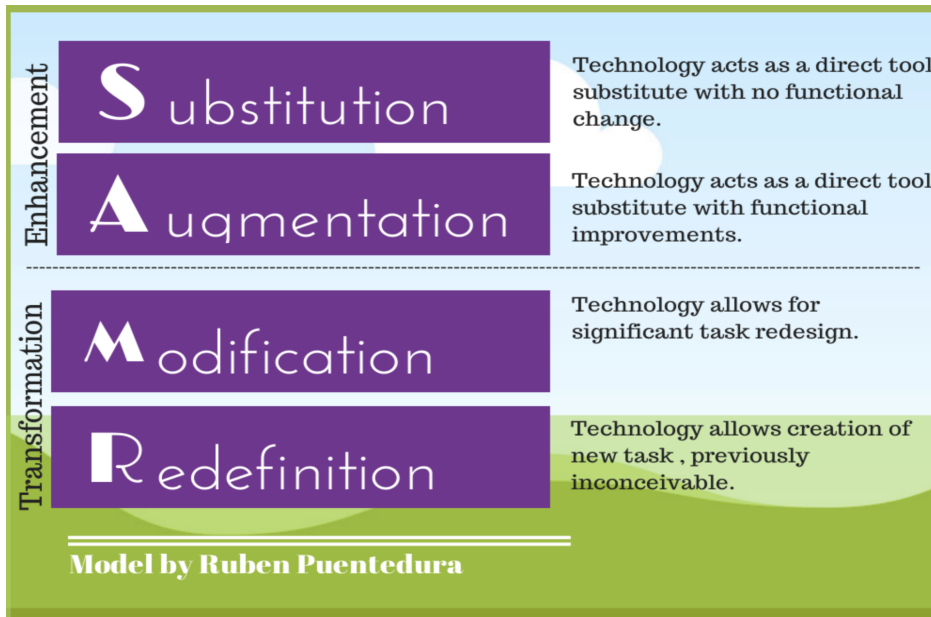

There are a plethora of tutorials, workshops, and videos about the SAMR model and how to use a particular tool redefine an idea, a problem, build a collaborative idea, and other ways of pushing thinking and creating in new ways not possible using conventional and traditional methods. A simple Google search can provide many of these ideas, and a search of YouTube can locate several of Dr. Puentadora's explanations of the model

Teacher librarians who not only understand the model, but also build a repertoire of not just tools, but also strategies for their use, stand a great chance of leading in the push for technology to actually make a difference.

The Purposes for Technology Use Using the LIIITE Model

The LIIITE Model suggests to teacher librarians six different areas to insert tech tools alongside their focus on co-teaching alongside classroom teachers. That model is reproduced below:
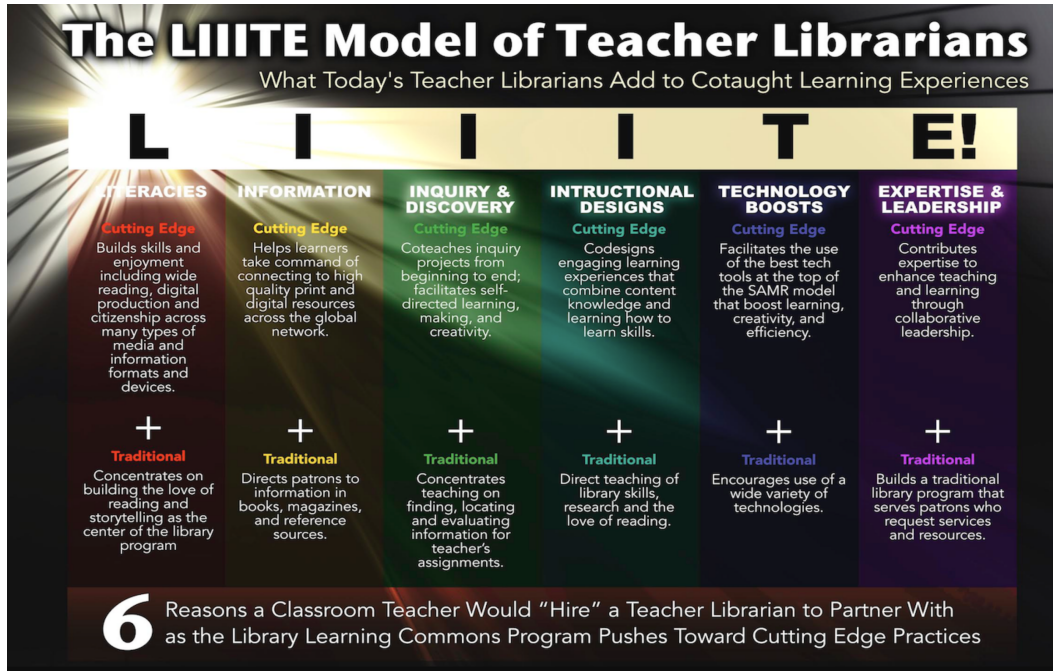
Whether we as teacher librarians are embedding reading, information, inquiry, or a fresh instructional design into a learning experience, we use our expertise to select a tech tool that pushes traditional learning in that learning experience. For example, in a study of endangered animals, we insert a Google sheet into the mix where individuals and small groups are studying individual animals and putting their facts or findings into the sheet, and then the class as a whole can compare and contrast across animals to determine common causes and solutions that have been tried by governments and organizations. The students are in a much better position to recommend or even participate in a way to help the animals if they had just done a series of reports, presented to the class, and received their grade. It is the difference between surface learning and deep understanding.

Asking the So What? Question Using Micro Documentation to Measure Impact on Teaching and Learning

In today's rich technology world, we hope to equip every learner and every teacher with the tools to accomplish what could not have been done just a few years ago. Some schools still lag behind the vision of what technology can and should be doing. And, the lack of momentum in many districts and schools constitute a major lag on the concept of change by using technology. Naysayers abound; students complain about what they can't do and what they need, and funders question why.

One thing teacher librarians can do is to keep asking the So what? question as they watch technology being used or abused in the school. What tools do we have? Are they being used to their potential? Why or why not? How can improvements be made? Who can help?

In the balance of this chapter are selected ways to measure the impact of technology on teaching and learning in the school. Perhaps some of these measures can be used, but also improved upon as you and your teachers, and particularly your student advisors, can think about and implement them.

Central Measures to Consider

(Tech1) Tech Reliability (All Levels)

When systems and networks are as reliable as refrigerators, we've made it. Enough said. Everybody wants instant access with wide bandwidth now. Instant gratification. The tech system of the school makes it possible to serve information 24/7/365.

Measure to report:

- Given the goal of 24/7/365, the school network last month was available _____% of the time and the virtual learning commons was available _____% of the time.

- Report trends over time.

- Do an analysis of down time and for each cause, suggest an improvement together with costs of repair or upgrade.

This measure is a **direct measure** at all levels: the **learner level**, the **teaching unit level**, and the **organization level.** (One could make the case that when the networks are down there is a direct impact on teaching and learning since a major blockage occurs.)

(Tech2) Tech Accessibility (All Levels)

In real estate, we say, "location is everything." In networks and access to them, "at the elbow" is in. At the moment, the rage is WiFi (wireless access) so that a personal device or computer can sense a signal anywhere in a LLC, classroom, school facility, or in the home. The goal is to have the virtual learning commons at the elbow of every patron.

The second access measure is the device measure. What devices are you supporting for access to the virtual learning commons?
- Computers attached to networks

- Laptops or tablets
- Smart phones
- Devices owned and circulated by the school
- Devices owned by the students
- "X" product that is just on the horizon and will be announced shortly

Learners who have access to the Internet but not the virtual learning commons find their information systems elsewhere. This is true when the LMC is locked or inaccessible to a student any time during the school day and certainly on nights and weekends. Closed LLCs are zeros!

Collect and report data showing:

Access Where

Access on What

Access for Whom

This measure is a direct **measure** at all levels: the **learner level**, the **teaching unit level**, and the **organization level.** (One could make the case that when a student is outside the signal area, or the digital school library is inaccessible on a student's personal device, that there is a direct impact.)

(Tech3) The Virtual Learning Commons: System of Choice? (Learner Level)

Which brand of toothpaste, mouthwash, shampoo, or lotion do you use? Do you prefer them for their quality or because of the advertising hype? Are we absolutely certain that the grocery store we shop at has the lowest prices?

What is on your own computer as its home page? Is there library access on the home page of your own computer? Is there access to Google or your favorite Internet search engine on the home page of your own computer? Is the virtual learning commons on student's devices in a prominent position?

Now to the tough questions:
> Is your LLC digital library, information system, portal, displayed on the home page of teachers and students? What percent? Why not 100%?
> If your virtual learning commons is not the home page of a potential user or at least an icon on their home page, what chance do you have of being that user's information system of choice? (Choose one answer: little, or none).
> Should you be in competition with other apps that students and teachers use? Are you in competition?
> How could you get into the competition?

Is it too late already? (If it is, should we quit our jobs?)
Are we taking the competition by lying down? NOOOOOOOOOOO!

Do a simple survey: Ask students to rate which information systems they would usually access first, second, third, etc. Are you in the top five? Are you top dog? What percent of the users rate you in the top five or as top dog?

Like Colgate or Pepsi, proclaim your presence <u>loud and clear</u>. What's your slogan? (Things go better in the "Washington school LLC")

This measure is a **direct measure** at the **learner level**. If you're top dog with any user, you're in. If you're out, you're out.

(Tech4) Tech Efficiency (All Levels)

Do you remember the typewriter? Do you remember the changeover to a word processor? I thought so. And you're not that old! Blanche Woolls typed this author's dissertation. I ran across it recently when I was moving. Every page had to be typed only once and perfectly – and then the committee wanted changes? Horrors.

We say that through the links available on the virtual learning commons, the helps, the useful tools, the connections to your project assignments, the useful information, the suggestions, the direct access to quality databases, etc., that we increase the <u>efficiency</u> of anyone who clicks our way.

> Come to us.
> *We save you time.*
> We have exactly what you need.
> *We save you time.*
> We make your projects look better.
> *We save you time.*
> You can trust our information.
> *We save you time!*

I know they don't believe you. Google is always faster and better. Or, is it? One great library media specialist in Massachusetts tells her students: "Do you want to SEARCH or do you want to FIND? Do you want a GOLD MINE or a TRASH HEAP?"

Divide a class in half who are searching for the best articles on the topic at hand. Half will search Google, half LLC databases. What happens? Who gets the best the fastest? I did not say, who got the most the fastest!

The virtual learning commons should be the source of:
▪ Tools
▪ Assignments
▪ Tutorials created by fellow students and experts

- ▪ Best information almost any topic
- ▪ What's happening at school
- ▪ Opportunities to participate in
- ▪ Fun projects outside of schools
- ▪ Virtual clubs
- ▪ The living school yearbook
- ▪ Service projects you can help with
- ▪ Our own virtual community where we can all contribute, share, help, and create together

Tally awareness of these. Tally use (counters help). Ask users what they prefer. Ask about the competition. Beat the competition. Brag about beating the competition. This is a **direct measure** at all levels.

(Tech5) Reflecting With Students About Technologies They Used During a Learning Experience.

Why Reflect?
Frank discussions and reflections with learners can provide a great deal of valuable feedback from learners as they try to use technology to accomplish their assignments. Being a coach rather than a dictator can be quite beneficial as systems are created, maintained, and modified.

Who would conduct the reflection?
A mix of the teachers, administrators, the teacher librarian, the technology specialist, plus the learners themselves.

When should the reflection happen?
After a learning activity where technology, information systems, LM\LC facilities and resources were a critical part of the learning experience.
After the grades are in. (Students should feel free to speak up.)
After an assessment where learners had to demonstrate their knowledge or what they did.

What questions might be constructed to ask during a reflection?
Each reflection will have its own set of questions, but the list below is suggestive of topics to broach and adapt to any grade level:
Here is the state standard/local expectation that we as teachers had for this learning experience (list those used by all teachers and specialists across the various curricular standards). How well do you feel we did as a group in meeting those objectives?
How well did a certain technology help you as a learner?
What information sources or systems seemed to help you the most?
What problems did you encounter with either a technology or information sources?

What could we do to make sure that technology and information sources serve us better in our future projects?
How could you help the process more as learners?

How sophisticated should the reflection be?
Tailor the reflection to the maturation level and student experience using technology.

How much time should it take?
Reflections might be as short as ten minutes or as long as a half hour depending on the complexity of the learning activity, the difficulties encountered, and the sophistication level of the learners.

What should happen after the reflection?
Meet with the other adults involved to plan any changes in program.
Document the reflection as a part of data-driven practice at the learning unit level.

Bottom Line Questions

- What is the sophistication level of the students in their use of technology?
- Is the use of technology really enhancing the learning experience?

(Tech6) Judging Glitz vs. Content in Tech Products (Learner Level)

It is easy to be impressed with the glitz of technology particularly when the student knows more about computers or other high-tech than we do. But glitz is not a substitute for deep learning. Thus the first two commandments of the ten commandments for judging projects for classroom products:

> Thou shalt notice the substance of the product or project first.
> Thou shalt notice technological expertise later.

As learners begin projects, the collaborating team constructs a rubric that sets content before format; rewards learning over presentation; and process over product.

Content Items (based on Indiana standards)
  (what the learner should know and be
  able to do; created by teacher and learners)

Process Items (inquiry)
  (created by the teacher librarian)

Technology/Presentation Items
  (created by the technology specialist and
   teacher librarian)

Rubrics List

…
…
…
…
…
…
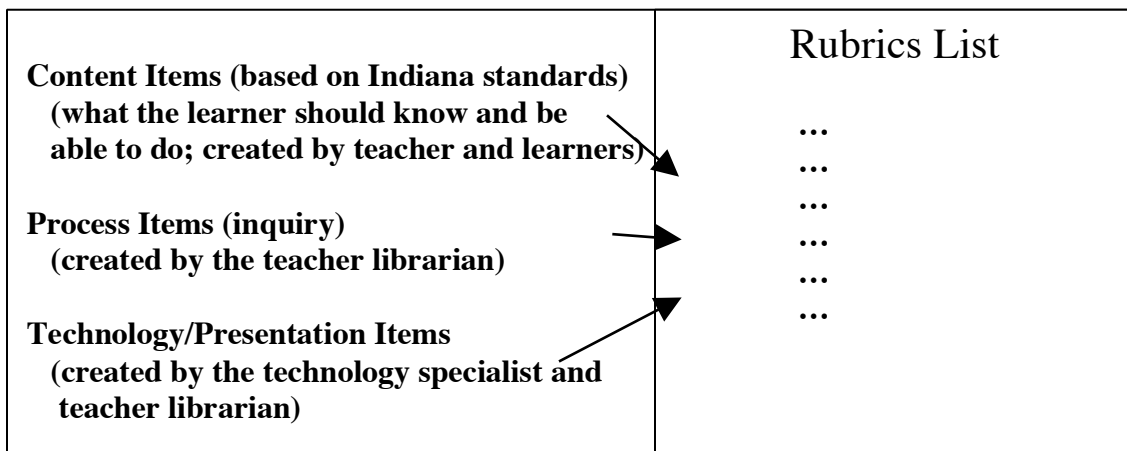
Use your favorite rubric generator to judge the content and deep understanding of a project where technology played a major role. Here is an example of a compare/contrast project

	5 Exemplary	4 Not Quite Exemplary	3 Developed	2 Not Quite Developed	1 Limited
Content Knowledge	The purpose/main point is clearly defined. The student demonstrates strong critical thinking and well integrated ideas, and maintains clear focus and a compelling and original voice. The student compares and contrasts two things using specific examples to support his position. There is evidence of genuine learning - others find work useful and benefit from this product.		The main point is only implied or partially stated. The student shows some evidence of critical thinking and integration, as well as focus, style, and voice. The student compares and contrasts two things but uses few or somewhat unclear examples to support his position. There is new learning but for the student only – not developed or useful for others.		The main point is unclear. There is little or no evidence of critical thinking or integration and a lack of focus, style, and voice. The student does not compare / contrast two things, and uses inappropriate or no examples to support his position. There is no evidence of new learning - nor developed or useful for student or others.

(Tech7) Use the Tech Learning Ladder as a Before / After/ So What? Chart (Organization Level)

A simple chart of progress can be an easy way to look at progress in tech tools over time to share with administrators and school boards. Create a table that shows the category from the Tech Learning Ladder and then show where you were, where you are now, and a cell for the So what? and future hopes. A sample appears below:

Ladder Category	Before	Currently	So What? and What's Next?
Efficiency	A year ago: were passed in on paper	Google Docs is now used by almost all teachers to store assignments and submissions in the cloud	The time savings for both teachers and students and the saving of paper has been substantial. We hope that all teachers will be able to adopt this process but also learn how to develop collaborative submissions that can be graded and recorded to each participant

(Tech8) Use the SAMR Model to do Brief Case Studies of Before/After Changes in Tech Use During a Learning Experience (Teaching Unit Level and Learner Level)

Documenting individual teacher's push up the SAMR model using technology can be a very powerful way to communicate the difference that technology is making in the school. Case by case, describe how a tech tool was used previously, and how it is being used now. If you can demonstrate sample student products before and now, all the better.

For example, when Mrs. Smith asked students to submit their research reports via a Google doc, she did notice a bit of a rise in efficiency, spell check, and readability, but the content was about the same on paper or technology. Then, when the teacher librarian and the classroom teacher teamed to take advantage of the Google doc power of collaborative writing and editing, there was a major shift as kids commented, edited, created visuals, added correct citations, and formatted the product better. The results, when compared to the original shift to Google docs, were readily apparent.

Such cases can be documented for individual learners, small group collaborative work, and the deepening of understanding about the topic being investigated. Such cases can be collected in a museum room on the virtual learning commons and can be called up any time for reporting purposes and presentations. It is to Mrs. Smith's credit that she was flexible enough to learn how to stretch a technology and reap the rewards.

(Tech9) Use the LIIITE Model to Demonstrate the Embedding of Technology into Learning Experiences Across the School (Organization Level)

By keeping a museum of learning experiences that have been co-taught across the school and put on the Virtual Learning Commons website in the museum room, you have a number of cases upon which to draw that show how technology was used to enhance learning experiences in:
- Raising literacies
- Improving the use of information
- Using various models of inquiry
- Using more powerful instructional designs
- The experimentation with various types of tech tools

Cases can be collected and cited as evidence that tech tools do make a difference in the various contributions to teaching and learning that teacher librarians embedded when the partner with classroom teachers. Such cases can be documented across grade levels and subject disciplines. Even better, you can document tech improvement across the faculty with specific examples that show best practice being achieved faculty member by faculty member.

(Tech10) **Feature the Best of the Best Tech Projects on the Front Page of the Virtual Learning Commons (Learner Level; Organization Level)**

Feature examples and congrats to great uses of technology across the school center stage on the front page of the virtual learning commons website. Yes, that spot will be the living school yearbook that draws students and teachers to your page because it has sports, drama productions, concerts, poetry readings, awards, and other hot events. Mixing in examples of great use of tech tools just may stimulate adoption of those techniques by other teachers and students.

Keeping copies of those examples in a separate museum room provides instant stories to tell about technology and that is what you want to broadcast beyond the school walls.

(Tech11) **Ask the Tech Team to Develop Videos About the Excellent Use of Technology in Learning to Post on the LLC YouTube Channel (Organization Level)**

Having a group of tech savvy students who are volunteering at the LLC or who are taking a media class from you is a great group to enlist to be the leaders in technology around the school. The best example this author has seen is a group of some 70 in the tech squad volunteers in a single school who have all kinds of skill levels and ability levels who are the leaders in the school. They can create video documentaries, tutorials, and news items, and be of assistance in all the classes where technology is being used. They can be your documenters. Use them. You can be their cheerleader, advocate, mentor, and the person in the school who is pushing them to excellence in a career where expertise and service are key.

(Tech12) **Ask Learners to Keep a Journal Across Learning Experiences That Demonstrate Their Skill in the Use of Technology (Learner Level)**

When students are encouraged to create their own portfolio as a part of their personal learning environment, encourage them to have a section where they document their technological expertise. Many jobs now require not just a certificate of schooling, but will also provide as part of a job application that the person take a competency test that demonstrates their expertise. If young people begin to understand that a log of their expertise is an important part of their future, they can begin to understand what self-directed learning is all about.

This is the kind of documentation that learners can help other learners construct, and you can use samples of that work to document the growth in expertise of both individuals and,

by extension, groups. A few examples and stories would go a long way in demonstrating progress.

(Tech13) Sponsor a Technology Fair Alongside or Integrated into Other Celebrations for Parents and the Community (Organization Level)

Science fairs, maker fairs, parent nights, and other celebrations are appropriate places to have individuals and groups demonstrate their tech savvy. At many ISTE conventions I have attended, there are Mouse Squads out in the halls manning booths and interacting with conference attendees. What an incredible experience for them and for those who interact with their brilliance. Add their documentary videos to your virtual learning commons YouTube channel. Let the naysayers be drowned in irrefutable success stories!

Quick Measures

(Tech13) Compute the percent of students who would rate the technology as helpful in completing their assignments during a unit of instruction. After an LLC experience, a simple question on a Google form or vocally would surely elicit comments and no doubt open a conversation of how we could all help make things better in a hi-tech environment.

(Tech14) The number and percent of teachers who would report during a sample month that technology had "contributed to learning" during a collaborative activity in the LLC. If a question like this is asked at the conclusion of each LMC collaborative experience, much good revised planning, spirit of goodwill, and mutual congratulation would help build not just technology, but its effective use.

(Tech15) Use a checklist to gauge the integration of information technology into the school as a whole. Here are some sample questions:

Technology and Our School – A Question Bank

When information technology is integrated into the total school community, what might an observer notice by touring the school, the LLC, or special areas of the school?

Student Behaviors:
Students are interested/engaged in learning projects using technological devices and print resources rather than using those devices for games/recreation.
Students who are usually disinterested in school are engaged.
Students are pursuing their own interests as a part of learning activities

Because students are handling multiple data sources, they seem naturally headed in the direction of a problem-solving mode of learning.

Students seem to be at ease using a variety of presentation technologies.

Students are more focused on using the technology as a tool to further their learning than to "dress up" their projects or assignments.

Other:

Facilities:

Technology can be accessed from a variety of locations throughout the school. This arrangement allows for simultaneous use of technology by individual students, small groups, and large groups.

Needed technologies are consistently available.

Print resources and computer technologies are integrated into library media centers and classrooms.

Technology is available to learners and teachers before and after school, and at noon, in addition to the regular school hours.

Other:

Adults:

Teachers and teacher librarians are committed to a technology-rich environment and feel comfortable teaching in that environment.

Teachers and teacher librarians are coaching learners rather than delivering information.

In Conclusion

Taxpayers, administrators, school boards, and legislators need evidence that technology is making a difference in the schools they fund. The evidence is all around you as a teacher librarian if you are mentoring constantly the wise use of devices and software that really make a difference in teaching and learning. If you have good relations with the technology staff in the school or district, you make a huge difference, make the tech folks proud, and, best of all, bring up a new crop of youngsters ready to make a difference in the world. It is a result worth pursuing.

9 Expertise That Boosts Teaching and Learning

It is well known across the profession that you, the teacher librarian, make the difference in the quality of a library learning commons and what it does to improve teaching and learning opportunities in the school. If you are reading these words, you are probably a step ahead of most in the field, since you are already on the path to success and want to make even more headway. So, count your characteristics:

- A leader
- Flexible
- Easy to get along with
- Visionary
- Enthusiastic
- Knowledgeable
- Learning constantly
- Risk taking
- Organized
- Persistent
- Positive
- Knows how to work around barriers
- Thoughtful and smart
- Respected
- Willing to change
- Creative
- Like kids and teens

You probably have other qualities that I have not mentioned, and if you find some on the list you need to work on, you are open to that possibility.

Being a great teacher librarian is the toughest job you will love because you have a vantage point from which to see across the school and across learners – constantly gauging the pulse of the school that others do not have the advantage of seeing. And, you are the most valuable person any principal has because of your whole school view. But not all principals recognize this, and not many of them understand that if you both work in tandem, together you can make things happen.

I have often counseled teacher librarians about their relationship with principals. Actually, there are only three things you can do with a dud person at the top:

- Educate them
- Get them fired
- Move to a new school that has a principal who gets it.

I came to the above conclusion a number of years ago while doing some research in a large urban school district. I never published the results of that research, but in many interviews of teacher librarians, I discovered four types of situations:
- The teacher librarian was just trying to hold a job.
- The teacher librarian and the principal worked in tandem.
- The teacher librarian was a superstar but the principal at the top was a dud.
- The teacher librarian who was a terrific success.

If the person at the top is deficient in some major way, I concluded that even the most wonderful teacher librarian could not get up over the ignorance or lack of interest in the LLC by the principal.

Developing the personal qualities needed to succeed as a teacher librarian are beyond the scope of this book would not trust my own advice on, for example, how to abadon inflexibility and replace it with flexibility. All I know after visiting many teacher librarians across the country is that those who have winning personal qualities succeed at being great teacher librarians. Somehow they figure it out. And I have had many say: "Oh, I just do what seems to work best." Easier said than done.

I do, however, have just a few suggestions that might help in being able to demonstrate your expertise so that the classroom teacher can trust you as a valuable peer.

Develop a Personal Learning Network. A vibrant PLN is your way of learning in a fast paced world, keeping up, and staying there in ways that can affect your day-to-day best practices.

I recommend three parts to any personal learning network:
- Develop your own portal to the Internet
- Develop a Personal Learning network
- Develop a portfolio in two parts
    - A private space
    - A public space

An illustration of the PLN is pictured below:

MY PERSONAL LEARNING ENVIRONMENT

MY PERSONAL LEARNING NETWORK

RESULTS IN

My Own Information Space

- learn and what I must learn
- Managing and organizing my space
- Connecting to the best resources and tools I like to use
- Designing a safe learning environment
- Designing for what I want to

Who I Learn With

How I Learn Best

- Using Best Strategies and Tools
- Building Personal Expertise and Collaborative Intelligence
- In Both Formal and Informal Environments

To Create Personal and Collaborative Products

Digital Curation

- Archiving knowledge, skills and products that demonstrate personal competence and collective understandings

My Public Face

- Presenting myself to the world
- Broadening my learning communities

PORTAL

PERSONAL PORTFOLIO

CREATES

LEARNING TO LEARN REFLECTIVE PROGRESS

If you have a smartphone, you are probably well along in developing a portal. You arrange the apps on your phone to help you get to what you want and need as quickly as possible – home, work, fun, professional. On a computer, you might have as your homepage a Symbaloo webmix that uses tiles to approximate the pages of apps on the smartphone. The idea is to try to come into the command of the Internet rather than having it run over you like a juggernaut

The personal learning network consists of all the voices you want to listen to in order to develop professionally and personally. These include blogs, websites, Twitter chats, or oranizations and people who you are tracking and interacting with. You add from recommendations of colleagues and delete when the source becomes uninteresting. The point is, you are in charge of what you want to pay attention to.

The third piece of the PLN is your portfolio with the two rooms: the first room is for things you are working on and the second is what you want the public to know about you. The point is to try to control what folks find out about you, but as you already know, that is very difficult to achieve.

Professional Development. It is so easy to become insular by only paying attention to library networks and conferences. I recommend that you make a conscious effort to broaden your interests across education and by reaching out across the disciplines. TED Talks are a wonderful free way to explore a plethora of ideas and attend technology, curriculum, and general education conferences will help you get acquainted with major personalities across a wide spectrum. And, if you are poor, then the blogosphere is the place to spend a portion of every day just drinking in a plethora of ideas.

In addition to soaking up the best of the best, you can begin to offer professional development sessions for your colleagues. A workshop on technology where everyone is helping everyone else master a new system or software can be a great place to insert some of the tools that you love to co-teach with. If you connect into the agenda of school improvement from the principal or the district, you can often advance those causes, particularly if you see a great connection with what you want to accomplish. Just remember that the attention span of adults is going down as rapidly as that of the students, so learn to do action projects that leave them begging for more.

Come to the Table Prepared. When the superintendent or principal announces a new initiative or sends principals to some kind of training to which you are not invited, bone up on the content through your PLN so that you have the vocabulary and examples to show of folks who have already tried the method or strategy. You don't need to be the overbearing know-it-all, but folks around the table know that you always do your homework.

Surround Yourself with a Great Group of Student Advisors. None of us can know everything we need to know, so getting an inner group of "informers" who know what you don't is essential. In this "club," the motto is always, "You teach me; I teach you; and we all get smarter and wiser." Social networkers know a lot of things, and they often know them because of their sharing community of contacts. Join these networks or get the informants to teach you what they are doing and learning on a regular basis.

Keep Up Your Portfolio. You never know when a new opportunity might arise to make an even bigger difference. That is what this book has been all about. Opportunities for good people are not just in schools as teacher librarians, but might be in large business where you are doing professional development, or on a major design team in the medical field. Or it might be a trip back to the classroom where you now know how to be the best teacher out there.

10
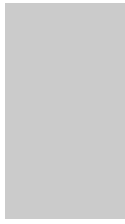
Presenting the Evidence

Presenting the evidence to whom, when, where, and how needs to be planned far in advance. When the author and Keith Lance teamed up to write *Powering Achievement*,[1] we decided to create a number of PowerPoint presentations and several brochures that could be presented in one minute, five minutes, and fifteen minutes plus a number of discussion questions that might engage conversation. For that book, we had a body of evidence that could be presented. The data were there, the results in.

For this book, the reader has to do the tough work of building a program and integrating measurement into that program before presentations can be made. Many teacher librarians are not certain they have lots to present because they have not collected the kind of stats that link them to impact on teaching and learning. They are probably right. Making the statement that "I'm helpful to everyone that seeks or asks" is insufficient to warrant mention. Yet, we have a long history of accreditation visits in most every school and have had to make efforts over the years at collecting some sort of data to meet accreditation guidelines. True, most of those data were at the organization level and were done in a big push effort every few years. So, some measurement is in our repertoire. Now times have changed and we must also.

Making an effective presentation gets us into the fields of advocacy, advertising, public relations, propaganda, logic, creativity, and probably just a good gift of gab. We are bombarded by good and effective messages every day of our lives. We are also deluged with junk. It would stand to reason that we could produce a good clear message about our contribution merely by copying some of the ubiquitous ideas around us.

I think we are probably too timid – too sure that our contribution is appreciated and valued when it really isn't. So we whine: "Nobody understands what we do." As Ross Todd often says to audiences, "Get over it!" Attention is the new currency of the 21st century. We have to yell at least as loud as any other educational program to be heard.

I have proposed banner signs at the door of the library media center something like: "Enter at your own risk! Your scores will go up!" Audiences get shivers when I tell them to announce to the faculty as a whole: "Any teacher who collaborates with me this year

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[1] Lance, Keith and David V. Loertscher. *Powering Achievement: School Library Media Programs Make a Difference: The Evidence*. 2nd ed. Hi Willow Research & Publishing, 2002.

will have higher scores!" Is it because we don't believe it ourselves? Are we too timid? Or what?

Get Over It!

When you have something to show and tell, do it: to parents, administrators, teachers, legislators, business partners — about anyone who will listen. And tell them often. I often remember Grace Donoho in Arkansas who was a very creative teacher librarian. Every month, she had an article in the local community newspaper about something good going on in her school – always mentioning the contribution of the library media center and the principal by name. Casting her bread on the waters paid BIG dividends.

Building a Repertoire of Effective Messages

One could take a class in effective message building or attend an Excel spreadsheet or Google Sheet class that would concentrate on creating graphs and charts from data. Those are both good ideas, but we all can pay attention to effective messages every day and copy the best ideas for our presentations. On the following pages are examples drawn at random from a Google search of "charts and graphs" with commentary for each. Remember that a good message will be:

- Simple
- Interpretable by a non-library audience in 15–20 seconds or less
- Striking
- Created with as few words as possible
- Significant (it will communicate something important about our impact)

	Use a graphing function connected to a spreadsheet such as Excel or a Google Sheet to show perspective of several trends in a single graphic.
Sometimes a simple bar chart is sufficient	
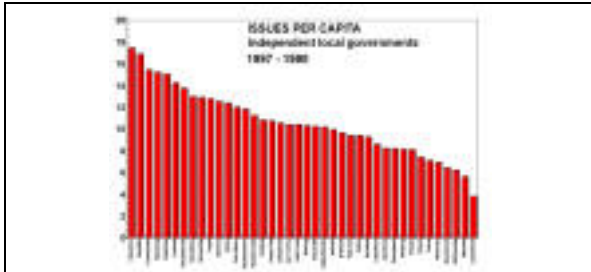
	To show a trend over time either up or down, lots of data elements give a dramatic picture of solid decrease or increase.
Simple bar graphs showing a trend is often sufficient.	
	This example is too busy to really understand; however, the use of pictogram elements is effective.
Snappy graphics associated with a simple message are often very effective.	
	You don't always have to use pictures to make a simple statement.
Colorful helps, but this one in bright oranges and yellows may distract and too many messages on a single graphic will confuse the audience.	
	Comparisons of three schools or techniques can be used to show superiority of one method.
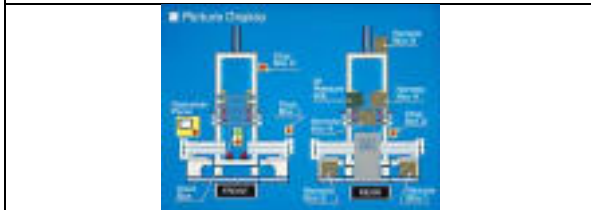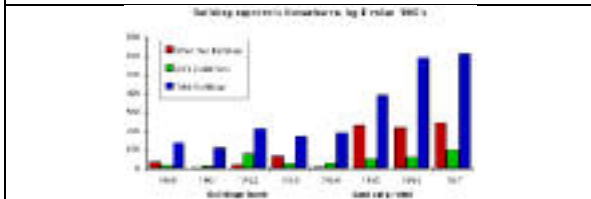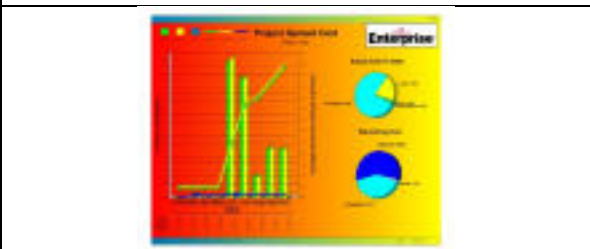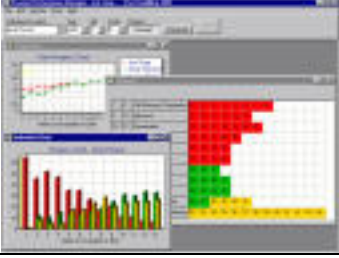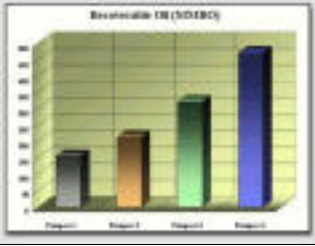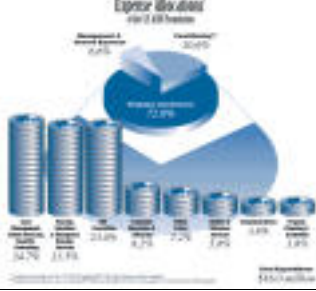
	Graphing packages often have a variety of views of the same data. Check out the options to find one that presents the message the most effectively.
A simple trend is often the best.	
	The common pie chart is very understandable to most audiences.
	Effective graphical elements that match your topic increase the message's effectiveness.
	If you really want to get fancy, you'd look like a business executive who has in-depth expertise. Perhaps that is your message – you know what you are talking about.
Don't go overboard just because you have a computer that will do something like this.	

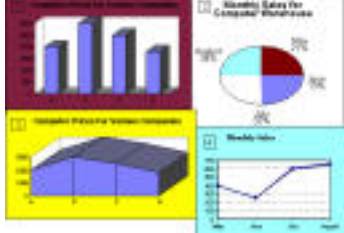|	
	Pictograms are effective.
Combining pictures with a bar chart can work, but this is too busy.	
	Too busy. Don't bother.
Color can be very effective. (bright orange pie; blue upper background; green background below)	
	How true!
A rotated pie can be quite effective.	
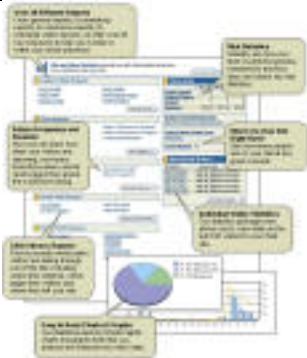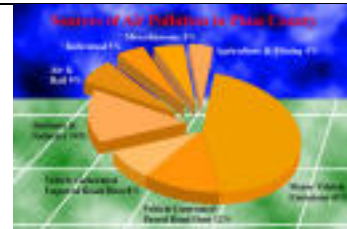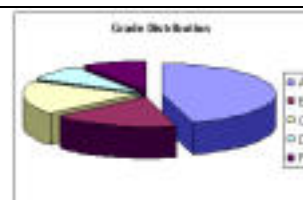
	A simple comparison bar chart can show an element of your program as compared to the other schools in the district over time. You started from behind (the dark bars), but left them in the dust!
Remember that the same data will produce different effects when graphed.	
	Good graphic. Too many words.
The ubiquitous line graph might just be your best choice.	

Certainly teacher librarians who are in schools where "death by PowerPoint" is a virus will develop a repertoire of what's good and what's not in that medium. When a student shows a creative product, perhaps we have that learner create a presentation for us.

Look for Good Examples in the Library World

The American Library Association always has some advocacy or public relations program going on. They often have ready-made messages that can be used free of charge or can be purchased from their graphics catalog. See them at http://ala.org

One high school teacher librarian I know used the idea of the READ posters that ALA produces and created ones of their own featuring the popular kids in their high school. Every year they had an unveiling that drew huge crowds. I remember one of the basketball stars of the school standing on his head reading his favorite book. It was life size and had been reproduced at Kinkos (Costco does them cheaper).

Don't forget the web pages of your state library and your various professional organizations – even if these are not in the library field. They will often have presentations that could be modified to fit your message. "Harvest" ideas.

Check out books in business and library advocacy books by the popular library press for ideas. And there are some very interesting video techniques that you can use. Try My Simpleshow software as one example. Do create your own YouTube channel either for the school or for your LLC. Infographics are also easy to create and share as a poster on the wall or on the LLC door. A before/after message would get read more often than you think.

Who Will Hear Your Message? Who Will Listen?

Get your elevator speeches prepared to present any time, anywhere, and to any one who will listen. Have at least one prepared about the topics of this book: literacy, information, inquiry, instructional design, and technology.

Think about policy makers, legislators, school boards, and the affluent in your community. What do they know about your efforts? Do you thank them for what they are already contributing? Blanche Woolls has been famous across her career asking teacher librarians to visit their legislators in person with a one minute good news message. And if they ask what more they can do, you are ready.

Many teacher librarians have learned to craft a message for Do Fund agencies or other grants. There are people out there who sincerely want to give money to something that will make a difference and using the documentation you have created can instantly know that the dollars are going to actual kids rather than another bureaucracy. If your school and district will allow you to have a DONATE button on your virtual learning commons, have several specific projects you need funded there, plus stories of those that were funded in the past and the difference they made.

Be a great scrounger. I know an elementary teacher librarian who wanted to transform her ugly and old library into a library learning commons. She asked everyone she knew for help – her church, parents, organizations, the janitors – just anyone who would listen, and many hands transformed her space into a dream place that every child in the school wanted to visit at every chance they could.

In Conclusion

And so we return to the question above: Who will hear your message? Who will listen? You will have to answer that, and hopefully there won't be an administrator, a teacher, a child, a business person, or a parent who hasn't heard you at least ten times. Kids and teens are worth it.