EVIDENCE-BASED PRACTICE

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American Association of School Librarians, a division of the American Library Association
AASL Election
President Elect/President
Candidate Statements

AUDREY CHURCH

ADVOCACY BEGINS WITH EACH OF US!

It is an honor to stand as a candidate for the office of president-elect of the American Association of School Librarians. What an exciting time to be a school librarian! We work with students, teachers, administrators, and parents. We work with print and the newest technologies. We are called upon to be teachers, instructional partners, information specialists, instructional leaders, and program administrators. We teach children skills, help them to develop dispositions, scaffold them as they take responsibilities, and position them to self-assess. We genrefy our collections (or not), set up makerspaces, augment reality; we drive the learning that takes place in our schools.

And, yet, what a challenging time to be a school librarian! We are asked to do more with less funding, less staffing, less time. We face issues of access—filtering, bandwidth, technology-haves, and technology have-nots. We face the ongoing task of informing others regarding our critical role in student learning.

We must continue to work—
- toward having a qualified school librarian in every school;
- to insure that we have quality programs to educate and prepare future school librarians; and
- to educate our stakeholders regarding the key contributions that strong librarians and strong library programs make to instruction.

<www.audreychurch.net>

DORCAS HAND

Support for building level librarians is the foundation of everything we do in AASL, like breathing. AASL publications, professional development opportunities, website initiatives and community connections unite us as an association providing our professional direction day-to-day, but ALL our work in schools relies on our strength as a collective body. We are only as compelling as our membership; continued development and deployment of relevant advocacy tools will encourage our non-member colleagues to join AASL to build an even more influential association that strengthens our effectiveness to better ensure that we are ALL acknowledged as indispensable for the important work we do.

Advocacy stands on the twin pillars of Leadership and Legislation—acronym ALL. If elected, my goal as AASL President will be to build an ever-stronger Advocacy program using this two-pronged approach as we ALL work together to find new ways to show legislators and administrators how school library programs impact student achievement. I bring a fierce commitment to advance the profession, to improve community understanding of our role in education, and to achieve our mission to transform teaching and learning through advancing excellence and leadership among ALL our members and the greater educational community.

<www.strongschoollibraries.com>
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“When innovation is evidence-based, it thrives in the trenches where practitioners try, test, and adapt new and different approaches.”

School Libraries and Innovation — pg. 54
I recognize that my role as a school librarian is critical to student success, and I look to AASL and my researcher colleagues to validate this assertion.

As the national organization for school librarians—whether in a building, district, or university—AASL believes that coordinating a national research agenda is an important role for the association. Like me, I’m sure many of you gravitate toward developing programs, reading and reviewing books for collection development, or coming up with the next game plan for game night. I recognize that my role as a school librarian is critical to student success, and I look to AASL and my researcher colleagues to validate this assertion.

Do you remember your first year as a school librarian? There was a lot to do, a lot to plan, and many steps to be taken. Developing a research agenda is no easier. What’s the first step to set up a school library? Assess the situation. Much like doing an inventory AASL pulled together 50 scholars as diverse as a good library collection—there were some published researchers, PhD students, state-level representatives, as well as researchers from outside the school library field—who all convened last April for the Causality: School Libraries and Student Success (CLASS) Summit to examine the current research into school libraries and student success and what was missing.

The next step in creating a school library is to pull in a stakeholders committee, which is invaluable in assessing your program. You know what you have, but you don’t always know what’s missing. Like school librarians, AASL pulled in a diverse panel to push the conversation during the CLASS Summit beyond the current view. The panel included one of the most influential methodologists in education research, Dr.
Much like a great school library program does not happen over night, a national research agenda requires a lot of planning, time, and dedication.

Once you’ve assessed what you have, what you want, and what others think, it’s time to plan. The researchers and panel helped to outline key research areas that needed to be addressed in the future, which formed the basis of AASL’s strategic plan. The goal for AASL is to coordinate a national research agenda, and, similar to developing a school library program, there is much to do and many moving pieces. AASL Past President Gail Dickinson created a Community of Scholars Task Force with the purpose of creating a structure that will support the development of a community of scholars in the school library research field or in ancillary fields connected to school library research. AASL is also finalizing the white paper published from the CLASS Research Summit <www.ala.org/aasl/research> and will begin implementing the next steps outlined in the paper over the course of the next five to ten years.

Much like a great school library program does not happen over night, a national research agenda requires a lot of planning, time, and dedication. AASL has made a commitment to advance the school library research agenda. Research may not be one of your primary interests, but we all recognize the valuable impact positive research can have on the school library role in education.

You will be hearing much more in the months to come. This research will be especially valuable to share with those outside our field, including administrators, school boards, and parents. Having these research results will actually prove what we know, and as a result we will be able to use this information to advocate for our students. Every student deserves a school library with a trained librarian. We know that we are teaching lifelong skills that really matter to all kids. All kids deserve those opportunities. When administrators ask for data, we will be able to provide it. The results of this research will impact students, and they are who is most important in this equation. What an exciting time!

**Terri Grief** is president of the American Association of School Librarians. She is one of the school librarians at McCracken County High School in Paducah, Kentucky. In 2013 she received the Barby Hardy Lifetime Achievement Award from the Kentucky Association of School Librarians. She also authored the chapter “Big Games at Reidland High School” in Teen Games Rule! A Librarian’s Guide to Platforms and Programs (Libraries Unlimited 2014).

Having these research results will actually prove what we know, and as a result we will be able to use this information to advocate for our students.
Evidence-Based Stories from School Library Research and Practice: Creating Synergy for Change

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It may seem as though they live in different worlds, but researchers in our profession share important goals with school librarians: To demonstrate the impact of school libraries on student learning and to continuously improve instruction. Evidence-based practice emerged more than a decade ago when Ross Todd, a contributor to this issue, applied evidence-based practice to school librarianship. He describes a framework for action: evidence for practice (reading the research), evidence in practice (applying the librarian’s expertise), and evidence of practice (students’ learning outcomes). In his article Ross champions school librarians as transformational agents who collect local evidence from their everyday work that demonstrates the impact of school library programs on student learning.

Mega Subramaniam, a researcher, addresses a particular case related to Ross’s challenge: the lack of evidence for what school librarians contribute to student achievement in STEM content areas. This evidence gap weakens claims that school libraries make a difference in student achievement.

On the other hand, an abundance of evidence shows that school library instruction impacts student achievement in reading and writing. Caroline Gordon Messenger, a classroom teacher, demonstrates how evidence-based practice can link instruction in information literacy with improving comprehension through reading strategies. Caroline models how inquiry teaching in the classroom can deliver a hybrid instructional model using research-based Guided Inquiry.

Carole Stubeck, an elementary school librarian, also uses Guided Inquiry to structure her teaching. Carole documents an action research project that uses stages of
the Information Search Process and digital technology to overcome problems of fixed scheduling by extending instruction from school library spaces to classroom and virtual spaces.

Like Carole, Joyce Valenza, a researcher and educator of pre-service librarians, applies technology to improve instructional practice. Joyce presents a rationale for rethinking the tools school library leaders use in collecting evidence and describes new digital tools for examining, analyzing, and sharing student work.

Susan Ballard, a consultant and educator of librarians, tells her story of how action research, as a tool of evidence-based practice, changed the culture of her school district. Susan’s narrative relates how action research became a sustainable model as it spread across the district. Susan’s perspective is that of action research, that of a consultant, and that of an educator. She describes how evidence-based practice helped educators and students in her school create a new learning environment in the library that included a high-tech Innovation Lab.

Hannah Byrd Little, a school librarian and administrator, also takes a team approach to presenting her students with rigorous intellectual challenges. Hannah offers a whole-school approach to a senior Capstone project that requires students to read peer-reviewed research, formulate theories, and conduct primary research. She describes how a school librarian meets the same challenges as her students when she aims to generate local evidence and to deliver evidence-based advocacy.

Jennifer Richey and Maria Cahill are collaborating researchers who ask interesting questions about school library practice. Jennifer and Maria use Ross’s well-known approach to study school librarians’ use of the three dimensions of evidence-based practice. Their findings will surprise you.

Five themes emerge from these articles—themes that are common ground for researchers and school librarians to connect their work in the context of evidence-based practice:

1) The dimension of school librarianship central to evidence-based practice is instruction;

2) The common goals of evidence-based practice for the researcher and school librarian are to demonstrate the impact of school libraries on student learning and to continuously improve instruction;

3) Local evidence generated by the work of school librarians is a critical piece of evidence-based teaching and evidence-based advocacy;

4) Guided Inquiry, action research, design thinking, and other research-tested methods can improve instruction while providing evidence of its impact on learning; and

5) Digital technology can facilitate evidence-based practice and provide solutions to problems of practice.

There is strong consensus among these authors: Local evidence generated, documented, and shared by school librarians in their everyday practice is the most powerful effect of evidence-based practice that can ensure a future for school libraries. Enjoy the authors’ explorations, discoveries, and reflections!


Work Cited:
EVIDENCE-BASED PRACTICE AND SCHOOL LIBRARIES

Lesson 7
File No. 3145 J

Ross J. Todd
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A professional focus on evidence-based practice (EBP) for school libraries emerged from the International Association of School Librarianship conference when I presented the concept. I challenged the school library profession to actively engage in professional and reflective practices that chart, measure, document, and make visible the impact of school libraries on learning outcomes. I argued that EBP for school libraries hinges on two concepts:

... the conscientious, explicit and judicious use of current best evidence in making decisions about [school librarians'] performance. It is about using research evidence, coupled with professional expertise and reasoning, to implement learning interventions that are effective;

and

... [the school librarian’s] daily efforts put some focus on effectiveness evaluation that gathers meaningful and systematic evidence on dimensions of teaching and learning that matter to the school and its support community (Todd 2001).

I remember audience reactions:

"We have to prove our worth?"

"This is not part of my job!"

"I really must do something with that pile of library surveys I have!"

"It is about what the kids do, more than what I do!"

I am deeply gratified to see the growing commitment to EBP and increased energy being expended for its implementation. Methods for EBP are embedded in pre-service education of school librarians. It is a focus of professional development for practicing school librarians. At school library conferences it is identified as best practice and examined as a conceptual framework in research-based literature. In response to growing interest in EBP across the library sector, the peer-review journal Evidence Based Library and Information Practice devoted an issue to EBP in school librarianship. (The issue is available at <http://ejournals.library.ualberta.ca/index.php/EBLIP/issue/view/444>.)

Holistic Framework for Evidence-Based Practice

Since my articulation of EBP for school libraries I developed a holistic conceptualization of EBP as a framework for action. I posit that EBP is an approach to school library practice that systematically engages research-derived evidence, school librarian-observed evidence, and user-reported evidence. Iterative processes such as decision making, development, and continuous improvement contribute to attaining the mission of schools: quality learning, quality teaching, and student achievement. EBP is founded on conscientious interpretation and integration of research-derived evidence to shape and direct professional practice. Simply put, a profession is, by definition, founded on research and scholarship.

At the same time professional day-by-day practice meshes professional wisdom, learned through training and ongoing engagement, with scholarship that shapes the profession. This practice forms a framework for reflective experience and understanding of the needs of our students and for judicious use of research-derived evidence to make judgments and decisions about how to enact instructional and service roles of the school library to meet the goals of the school.


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**Figure 1. Holistic model of evidence-based practice for school librarians.**
Evidence for practice focuses primarily on examining and using best available empirical research to inform actions and identify best practices that have been tested and validated. This is posited as the informational dimension of school library practice, or research evidence that informs practice.

Evidence in practice focuses on reflective practitioners integrating available research evidence with deep knowledge and understanding derived from professional experience. Evidence in practice involves implementing measures to engage with local evidence to identify learning dilemmas, learning needs, and achievement gaps with the goal of making decisions that result in the continuous improvement of school library practices. This is posited as the transformational dimension of school library practice.

Evidence of practice, the measured outcomes and impacts of practice, is derived from systematically measured, primarily user-based data. Evidence of practice focuses on the real results of what school librarians do, focusing on impacts, going beyond process and activities as outputs. As the foundational dimension, it establishes what has changed for learners as a result of inputs, interventions, activities, and processes and charts the nature and extent and quality of effect.

These dimensions are not posited as linear and static. Rather, they are dynamic, iterative, and integrative processes of welding evidence from multiple sources in a cycle of continuous transformation. Data, information, knowledge, and wisdom generate practice and demonstrate outcomes of practice, becoming a framework for decisions and actions. This framework, empowered by evidence, becomes action through advocacy, instruction, and services. I commend it to the profession as a planning and action framework. I deeply believe that the more our profession engages in this evidence cycle, the stronger the foundation the profession builds for the future of school libraries (Todd 2008b).

Need for Local Evidence

Since 2007 when I articulated the EBP holistic model, widespread concerns have been raised about the closure of school libraries in the wake of the emergence of digital information services. Widespread digital availability of information compounded the perceived invisibility of the school librarian’s professional role and highlighted stakeholders’ lack of understanding of the impact strong school library programs have on student learning. School librarians concerned with job losses have asked me to speak to school boards and other decision-making bodies and to present the research on the impact of school libraries on student learning. These requests concern me because they signal the wider community’s lack of knowledge of the value of school libraries and the vigor around evidence in the context of saving jobs. The need for “expert testimony” also indicates a lack of evidence-based planning and evidence accumulation at the local level (Ellerson 2010).

This reality was brought home to me by the Parliament of the Commonwealth of Australia’s inquiry School Libraries and Teacher Librarians in 21st Century Australia initiated in 2011. A team of 12 members of parliament gathered input from 387 written submissions and 12 hearings.

Findings acknowledged the central importance of school libraries and school librarians:

The Committee has been struck by the breadth of anecdotal evidence that it received demonstrating the significant contribution to learning outcomes in primary and secondary schools that a fully resourced school library, when staffed by a fully qualified and active teacher librarian, can make. This supports the findings of Australian and international research in this area. (2011, 118)

The report also stated:

The Committee appreciates that evidence-based practice takes time on the part of teacher librarians but agrees that documenting and highlighting examples of teacher librarians’ successes in improving educational and community outcomes is critical to illustrating the enormous potential of school libraries to help students achieve better results. (2011, 118)

The report concluded:

We recommend that the profession as a whole needs to develop the capacity to articulate needs from research-based evidence and local evidence collected in the school. (2011, 118)

We are reminded of the central focus of evidence-based practice, school librarians’ evidence of their practice, and the urgent need to build a compelling and diverse portfolio of local evidence deeply linked to the learning agenda of the school.
Advocacy, Evidence, and Action

The Australian parliamentary inquiry reinforced the interconnection of advocacy, evidence, and actions at the local grassroots level—your school. As I look back at my conceptualization of an EBP framework I recall the considerable investment of energy and resources devoted to the school librarianship profession’s rollout and ongoing promotion of advocacy initiatives. Advocacy has become a major focus for the profession. In 2012 the American Library Association initiated a Special Presidential Task Force on School Libraries to create a national campaign addressing “the urgent need for active support and advocacy for school libraries to ensure the best learning experience for the children they help to educate” (Sullivan n.d.).

The American Library Association developed “Advocacy University” (<www.ala.org/advocacy/advocacy-university>), a comprehensive clearinghouse of resources and tools for all types of libraries, and a library advocate’s handbook. A large number of school library organizations feature advocacy on their websites.

At the heart of the advocacy agenda is a foundational assumption that school librarians are critical to educational success. All advocacy websites link to the body of national research conducted in the USA and Canada; the results of this research provide evidence of the value of strong school libraries led by credentialed school librarians. The emphasis of such research is students’ academic development through information literacy instruction and the development of reading and literacy (Scholastic 2008). Multiple summaries of

We are reminded of the central focus of evidence-based practice, school librarians’ evidence of their practice, and the urgent need to build a compelling and diverse portfolio of local evidence deeply linked to the learning agenda of the school.
The challenge for the profession is to move beyond simply reporting state studies to crafting a compelling narrative that starts with local evidence of practice and links to the wider formal research evidence for practice.

Research for Evidence in Practice

Since its establishment in 2003, the Center for International Scholarship in School Libraries (CISSL) has undertaken a series of studies that explicitly focused on the evidence of practice dimension of EBP. These studies include large-scale studies:

- **Student Learning through Ohio School Libraries** (13,123 students, 879 teachers) (Todd and Kuhlthau 2005a, 2005b);
- **Student Learning through Delaware School Libraries** (5,733 students, 408 teachers) (Todd 2005a, 2005b, 2009);
- **New Jersey IMLS: Impact of School Libraries on Student Learning** (574 students, 27 teachers and school librarians) (Todd 2006; Kuhlthau, Heinstrom, and Todd 2008);
- **Ohio School Librarian-Teacher Collaboration Study** (Todd 2008a);
- **New Jersey One Common Goal: Student Learning Phase 1** (765 school librarians) (Todd, Gordon, and Lu 2010; Todd 2012); and

this research were intended to answer the question, “Do school libraries make a difference?” What is largely missing from these advocacy websites, particularly at state and regional levels, are the rich repositories of local evidence that showcase the work of individual school libraries. National evidence from school library research is tied to and exemplified by local evidence. The challenge for the profession is to move beyond simply reporting state studies to crafting a compelling narrative that starts with local evidence of practice and links to the wider formal research evidence for practice. Local evidence narrative is the missing piece.
• New Jersey One Common Goal: Student Learning Phase 2 (100 school educators: principals, classroom teachers, and curriculum coordinators) (Todd, Gordon, and Lu 2011).

In addition, a number of small-scale studies have focused on reading and literacy development in a range of contexts: summer reading, reading in digital environments, reading for personal enrichment (Lu and Gordon 2007; Gordon and Lu 2008), everyday-life information seeking of children and youth, and, most recently, an ongoing study focusing on collaborative learning in digital environments (Todd and Dadlani 2013). An overview of these studies is available at <www.cissl.rutgers.edu>.

Concept of Help
Collectively, these studies across diverse research goals, samples, and data-collection methods provide data and insights for planning and implementing local advocacy initiatives. There is a synergy in our approach to research and evidence that addresses the three dimensions of evidence-based practice. In many CISSL studies the central concept of “help” is embedded in the pervasive question “How do school libraries help students with their learning in and away from school?” This is the question central to EBP and advocacy initiatives. Over the years we have conceptualized help as institutional involvement through advice and assistance in information experiences of people—help as inputs—as well as the effect of this involvement on information users—help as outcomes.

In our analysis of the evidence a “culture of help” emerges as a core value. “Help” is critically important in education today, particularly as schools address budget and staffing shortfalls, increased class sizes, and implementation of the Common Core State Standards (CCSS). Advocacy initiatives must carefully articulate “help” as a key mechanism to address these current school challenges.

School leaders in the New Jersey study (Todd, Gordon, and Lu 2011) identified the following kinds of “help” in school libraries:

• The school library is a multi-disciplinary and equitable learning space where all subjects are represented;
• The school library’s mosaic of knowledge and global access creates an environment where learning is respected and pursued, helped and nurtured in safe and critical ways through curriculum-centered instruction and resource-based inquiry that enables deep engagement with texts to produce deep knowledge;
• Learning in the school library is viewed as a process of discovery, developing research and inquiry capabilities. The school library is defined and distinguished as a place that helps them to learn how to learn through mastery of resource, critical thinking and knowledge-building competencies;
• The school library is seen as key to the school’s mission to produce engaged and motivated readers and informed learners who can thrive in a digital, knowledge-based world;
• The school librarian is central to learning because s/he is viewed as a partner teacher enabling the information-to-knowledge journey of students;
• The learning-centered work of the school librarian helps define the school library as a pedagogical center;
• The school library offers a learning environment that is not based on “the right answer” prompted by rote learning, but on a more complex model of teaching and learning that is inquiry-driven and which embeds a range of information and digital literacies;
• Students want to be in the library. They view it as their information and technological home and value the expert guidance and help they receive. (Todd, Gordon, and Lu 2011, 26, 27)

Our research findings, along with the data collection instruments we developed, provide an adaptable framework and tool for individual school librarians to gather local evidence and to embed the findings into local and state advocacy initiatives. The challenge for EBP and school library advocacy is to articulate a “culture of help” in the context of individual schools and needs. These “helps” can be connected positively to pressures that exist in schools, particularly the CCSS’s emphasis on students’ ability to gather, comprehend, evaluate, synthesize, and report on information and ideas, and to conduct original research to answer questions or solve problems. Students are expected to integrate and evaluate multiple sources of information and synthesize multiple interpretations, identify and address conflicting information, and create clear and coherent knowledge representations that demonstrate their knowledge-building and research capabilities. Evidence and advocacy initiatives challenge us to explicate the outcome of each school library in relation to knowledge development through rich evidence-filled local narratives surrounding deep reading for comprehension and meaning making—the foundation for the personal construction of knowledge.
School Librarians as Agents of Transformation

Why not collect your stories of impact and help? Start with linking your instruction to CCSS. Build the narrative. CISSL has a long involvement in resource-based inquiry through the thirty-year research career of Professor Emerita Carol Kuhlthau and Guided Inquiry as a research-developed and validated instructional framework (Kuhlthau, Maniotes, and Caspari 2007, 2012). This narrative is informational evidence for your advocacy practices. Student learning outcomes resulting from an authentic and powerful inquiry-centered pedagogy that empowers learners to become expert consumers of information and producers of knowledge are your formational evidence of practice. However, it is what you bring to your work that goes beyond teaching a schema of skills. That is the transformational evidence in your practice. It is your knowledge-building capabilities: activating prior knowledge, building excitement, injecting interest and motivation for learning, building background knowledge, generating meaningful questions to research, developing research capabilities, producing knowledge through information analysis and synthesis, and reflecting on process and outcomes. Your skill and expertise can make all this happen in your school library.

You are the change! You are the local action. This responsibility requires gathering evidence to make your claims about students’ mastery of curriculum content; critical-thinking and knowledge-building competencies; mastery of complex technical skills for accessing and evaluating information and using these skills to construct deep knowledge; outcomes related to reading motivation, comprehension, and enrichment; outcomes related to attitudes and values of information use and learning; and the development of self-concept and personal development. This is your evidence agenda, and this is your future.

Ross J. Todd is associate professor in the School of Communication and Information at Rutgers. He is chair of the Department of Library and Information Science and director of the Center for International Scholarship in School Libraries (CISSL) at Rutgers University. His primary teaching and research interests focus on adolescent information seeking and use. The research includes: understanding how children learn and build new knowledge from information, how school librarians and classroom teachers can more effectively empower student learning, and how the development of information and critical literacies through guided inquiry and constructivist learning approaches lead to deep knowledge and deep understanding. He has published more than 120 papers and book chapters and has been an invited speaker at many international conferences, most recently in Colombia, Sweden, Russia, Lithuania, France, Japan, and Australia.

In many CISSL studies the central concept of “help” is embedded in the pervasive question “How do school libraries help students with their learning in and away from school?” This is the question central to EBP and advocacy initiatives.
Works Cited:


Santa Barbara, CA: Libraries Unlimited.


NEW TERRITORY for SCHOOL LIBRARY RESEARCH

Let the Data Speak

Mega Subramaniam | mmsubram@umd.edu
The STEM Challenge

A seminal dialogue on evidence-based practice (EBP) at the International Association of School Librarianship in 2001 encouraged a worldwide paradigm shift in school librarianship from rhetorical and advocacy defenses to evidential documentation. Ross Todd described EBP as evidence for practice, evidence in practice, and evidence of practice (Todd 2006, 2008) “to collectively represent a holistic and integrated framework for professional practice that is robust, reflective and regenerative” (Todd 2006, 36). Since then school librarians have demonstrated their impact on reading and writing. However, evidence of their impact on science, technology, engineering, and mathematics (STEM) achievement is rarely discussed or shared. School librarians spend less time with STEM content because:

(1) They typically have undergraduate degrees in social sciences and language arts, which results in discomfort with STEM content;

(2) They do not believe they have expertise in STEM; and

(3) STEM teachers discount school librarians’ expertise to serve as their instructional partners (Subramaniam and Edwards 2014).

This situation must change. The Next Generation Science Standards (NGSS) (<www.nextgenscience.org>) and the Common Core State Standards for Mathematics (CCSSM) (<www.corestandards.org/Math>) address scientific and mathematical skills. It is time for school librarians to change their mindset and embrace student achievement in STEM.

School librarians can collaborate with STEM teachers and be instructional partners in mathematical and scientific content areas. With their knowledge and expertise in media and technology, school librarians can encourage students to envision application of STEM practices in their daily lives and inspire them to become scientists and engineers (Subramaniam et al. 2012). It takes a community of researchers, school librarians, educators, and professional organizations to cultivate and sustain EBP in STEM subjects.

New Evidence FOR Practice

In evidence for practice school librarians use empirical research to inform practice. A wealth of research, or “big data,” substantiates school libraries’ impact on students’ reading and writing. Unfortunately, we have no empirical or large-scale studies and few statewide studies that demonstrate correlation or causal links between the school library program (SLP) infrastructure, instruction, and services and an increase in STEM achievement. The Partnership for Assessment of Readiness for College and Careers (PARCC) includes a nationwide assessment for mathematics and recommended state-level assessments for science soon to be administered in some states that have adopted the Common Core State Standards (PARCC 2014 a, 2014 b). As a result, school library researchers will have rich data to map the contribution of SLPs to STEM achievement.

The crosswalks between the CCSSM and AASL’s Standards for the 21st-Century Learner (2014 a) and the crosswalk between NGSS and the Standards for the 21st-Century Learner (<www.al.org/aasl/ngss>) can guide correlational and causal studies. AASL’s plan to conduct multi-tier research will contribute big data to strengthen the connections between SLPs and student learning of all subjects (AASL 2014b).

New Evidence IN Practice

Evidence in practice links research evidence with school librarians’ professional and local experience to identify learning needs and achievement gaps (DiScala and Subramaniam 2011). School librarians need to be familiar with action research frameworks that “direct how evidence is collected, how it is analyzed, and how it is applied to the identified problem” (Gordon 2009, 69). Many how-to articles guide school librarians in assembling evidence in practice, but most preparation programs and certifications of pre-service school librarians do not include EBP methods. Nor do professional development and continuing education initiatives on local, district, and national levels target EBP. Fortunately, the most recent ALA/AASL Standards for Initial Preparation of School Librarians (AASL 2010) prescribe the inclusion of EBP skills in school librarian preparation so practitioners can process evidence and identify gaps in STEM skills and literacies (and all other subjects).

Evidence OF Practice

Evidence for practice and evidence in practice prepare school librarians for the focal point of EBP: engagement with local evidence of student work, or evidence of practice. In evidence of practice, “School librarians measure what students have learned as a result of inputs, interventions, and activities administered in the SLP that the students...
have participated in” (DiScala and Subramaniam 2011, 63).

Collecting the Evidence

The three dimensions of EBP come together in figure 1 to illustrate “big” and “local” data and their sources. At the center is student achievement. School librarians collect local evidence from survey responses, applied rubrics, and state-based testing data. In STEM subjects, these data can measure the learning of STEM practices as stipulated in the CCSSM and NGSS.

The outer ring of the EBP circle depicts big data generated by school library research to provide evidence for practice. Evidence in practice sits between local and big data. It resides in knowledge and expertise of school librarians. This is where local and big data become part of the school librarian’s work.

Here are a few examples to provide school librarians with ideas on how to collect evidence of practice in their SLPs.

Elementary-level PARCC assessments (PARCC 2014c) involve computer-based testing requiring students to transform textual and numerical information into visual representation. Students are expected to master mathematical skills as well as media and visual literacies. School librarians can collaborate with grade-level teachers to assess media and visual literacy and simultaneously collect local data such as:

- Observations of students’ interaction with sample exam questions online (before and after facilitation), e.g., dragging and dropping, and creating and manipulating a number line;
- Student self-assessment using a checklist of media and visual skills relevant to PARCC assessments.

Mathematical practices are woven into all grade-level standards in CCSSM. One of the eight mathematical practices in CCSSM is “Use appropriate tools strategically” (Mathematical Practice 5). This practice requires the integration of technology, namely, that students “know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data” (Common Core State Standards Initiative 2014). Similarly, AASL’s Standards for the 21st-Century Learner (2007) require technology use to analyze, organize, and display information. School librarians and middle school grade-level mathematics teams can collaborate using technology tools such as Infogr.am to visualize probability and statistics, and graphing tools provided by the National Center for Education Statistics <http://nces.ed.gov/nceskids/createagraph> can be used to visualize ratio and proportionality by creating graphs. School librarians can coteach use of these technologies and document improvement of students’ skills, as well as monitor formative and summative assessments mapped to Mathematical Practices 5. Local data includes:

- Before and after instruction checklists that enable students to self-assess skills such as changing the types of graphs and creating x, y, and z axes;
- Skills required by formative and summative county assessments,

School librarians have demonstrated their impact on student achievement in reading and writing. It is time for them to explore new territory to discover how to facilitate the learning of technology and textual, visual, new media, and information skills targeted by NGSS, CCSSM, and STEM state standards.
skills such as visualizing varying assumptions and comparing predictions with data.

School librarians and science teachers can engage in data-driven collaboration to map skills from the Test of Scientific Literacy Skills (TOSLS) (Gormally, Brickman, and Lutz 2012) or from local high school science or biology assessments to skills and dispositions in AASL’s Standards for the 21st-Century Learner and administer these tests on a systematic or diagnostic basis. Systematic administration of these assessments captures the contribution of SLPs over time and informs school librarians’ day-to-day teaching decisions. Sections of the tests can be administered diagnostically when specific instructional problems arise. For example, the TOSLS test includes items that require students to evaluate the reliability of a science website. This task clearly links to skills 1.1.4 and 1.1.5 in Standards for the 21st-Century Learner (AASL 2007). In this example, local data include TOSLS scores (full or selected sections in the assessment).

Moving Forward

School librarians have demonstrated their impact on student achievement in reading and writing. It is time for them to explore new territory to discover how to facilitate the learning of technology and textual, visual, new media, and information skills targeted by NGSS, CCSSM, and STEM state standards. Collecting and analyzing local data reveals SLPs’ contributions to essential STEM literacies. Let’s capture data that tells the story of school librarians’ contributions to STEM education so school librarians can stake their claim as essential collaborators in ALL content areas.

Mega Subramaniam

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Works Cited:


In this article, Caroline Gordon Messenger explores the integration of evidence-based practice in the classroom and the school library. She emphasizes the importance of incorporating research findings into educational practices to enhance student learning and library services. 

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“What’s *The Brady Bunch*?” asked Maria as she interacted with the other members of her reading inquiry group in our ninth-grade English class. We were reading *Seedfolks* by Paul Fleischman, and the inquiry groups were finding and researching unfamiliar allusions they found in the novel. Their task was to discuss why the author used allusions to create meaning.

“Uh, I think it was some show in the 90s,” replied Sarah.

Kyle, a reluctant participant who had not been involved in previous discussions, suddenly came to life. “*The Brady Bunch* was this TV show that ran from 1969 to 1974 and was about this guy and girl who had six kids.”

Kyle made eye contact with me as he said, “I think that’s the only research I ever did on my own—AT HOME!”

“So does Gonzalo wish he had this big family?” asked Maria. She was making connections between Kyle’s information about *The Brady Bunch* and a chapter in *Seedfolks* about a boy’s relationship with his father.

Kyle sighed and put down his book. “No, he doesn’t wish he had a big family. He wishes he had the perfect family, like the American Dream or something,” he replied.

Was I hearing correctly? Did Kyle, who reads at a fifth-grade level, experience literary insight? How could this happen? In thinking about Kyle and his motivation to research *The Brady Bunch*, I was struck by what he was able to read and understand. A high level of comprehension affected how he applied his new knowledge about *The Brady Bunch* to experience literary insight. His work, along with that of his peers, became the foundation for my evidence-based practice in the classroom.

**Evidence-Based Practice and the Research**

My role as teacher was to monitor student progress, in part, through observation, but to assess my students’ progress I needed to know what the research says about literacy development. What are the best teaching methods? What really works? The reading levels of students in Kyle’s class ranged from fourth- to eighth-grade. Despite Kyle’s low reading level, his performance in the inquiry group aligned with literacy research about prior knowledge. When students start out with the same understandings and information, they can function on grade level, even if that level is above their comfort zone (Baldwin, Peleg-Bruckner, and McClinton 1985; Guthrie 1981; Lipson 1982; Tobias 1994). Like Kyle, I experienced my own insights based on the literacy research.
I began to reflect: if interest and knowledge develop and enhance a student’s ability to read better, then assisting students in activating prior knowledge prepares them for reading challenges. Being literate goes beyond the ability to read at grade level. It is the ability to process information to analyze, synthesize, and draw conclusions.

More than twenty years ago, reading researchers sought to capture the behaviors good readers demonstrated to make meaning from their reading. By shifting the focus away from what was wrong, researchers were able to study and discuss what worked. A comprehensive list of reading strategies emerged from this research. This was an important discovery. Defining literacy shifted from the ability to read words on a page to the ability to draw conclusions about meaning. The research showed that reading strategies can be taught through practice and reinforcement in the classroom. When I discovered how reading strategies improve comprehension (Olshavsky 1976; Robb 2000; Harvey and Goudvis 2007) I realized these strategies could help me create interventions that help my students become better readers.

Activating prior knowledge is an important reading strategy that helps students identify what they already know about a subject before they begin to read about it (Spires and Donley 1998). When planning how to guide students through Ernest Hemingway’s The Old Man and the Sea, the first challenge was connecting young teens with an aging protagonist who yearns to regain the admiration of his community through his prowess as a fisherman. How could I help them identify with Santiago’s sense of loss and his journey of self-actualization? Working in small groups, students began by activating their prior knowledge using a K-W-L activity that asked them to map what they knew, how they could relate to the story, and what their personal connections could tell us about potential themes we might encounter. The students made predictions based on the knowledge and experiences they collected as a group. They read the blurb on the back of the book, explored the front cover, and then created a communal list of what they already knew from these two sources. The student entries in the first column of the K-W-L chart (figure 1) indicated that the Old Man will face a struggle. They didn’t know the nature of the struggle, but they knew it involved deep-sea fishing. Their predictions, based on what they already knew, included:

- “Hardships”;
- “Persistence”;
- “Hope”;
- “He will eventually catch a fish”;
- “This book is about opportunity.”

Students used their communal prior knowledge to build a foundation for their eventual analysis of theme and characterization and to arrive at conclusions about the author’s intended meaning. They did this...
before reading the first chapter. The second column of figure 1 contains evidence that students began to connect to the story and the character by talking about when they felt or experienced any of the items predicted in the first column. They identified “sense of loss.” In the short summary they read, they connected with Santiago’s inability to catch a fish and the degradation he feels at others’ pity for his loss of skill and ability. They related to the “frustration, anxiety, depression” that could result from change and metamorphosis. They went on to discuss what this novel would eventually tell them about life, such as, “Life is not always easy, and you will not always get what you want.”

Through this group activity, students used the following reading strategies to gather information and prepare for reading The Old Man and the Sea:

- Activate prior knowledge;
- Make predictions;
- Draw conclusions;
- Ask questions;
- Make inferences;
- Synthesize;
- Build fluency.

Now they are ready to read.

Reading Strategies and the Information Search Process

Students need to experience inquiry both in and out of the classroom with some consistency and reinforcement. One of the nine widely accepted reading strategies is asking questions (Olshavsky 1976; Robb 2000; Harvey and Goudvis 2007). When students formulate questions and develop their own answers they are engaged in critical thinking that requires critical reading. Information literacy research offers a diagnostic tool in the form of the Information Search Process (ISP) (Kuhlthau 1983). As a teacher I think of the ISP as a framework for critical thinking that develops through interaction with information. Students frequently need to revisit and refine skills as they develop their research and their thinking. Reading strategies help students engage in independent and deep reading so they can develop interpretive and analytical skills. Like the ISP, reading strategies provide students with research-based supports in the gathering, processing, and analyzing of information for the purpose of constructing new knowledge and understandings. When compared with ISP stages (figure 2) these reading strategies are remarkably compatible with interventions commonly used to help students successfully complete an information-based inquiry.

In the Task Initiation phase of the ISP (see figure 2) students feel uncertain and their thoughts are vague. Activating prior knowledge supplies them with a foundation and confidence to move forward to Topic Selection. In the Exploration stage they are inundated with information and may lose focus and motivation. Reading strategies such as asking questions, making predictions, and synthesizing can help them filter the information and arrive at Focus Formulation so they can generate questions. At the Information Collection stage they are prepared to discriminately select or reject information relative to their questions and focus. Reading strategies such as drawing conclusions and making inferences help them to collect relevant information so that they can synthesize it in the Presentation stage when they are using their knowledge and skills to create a new understanding while meeting the learning targets for the project.

In Presentation and Assessment stages building fluency and developing vocabulary helps students communicate effectively with others about what they have come to know.
The deliberate and thoughtful use of reading strategies, particularly when students are engaged in a unit of inquiry where they encounter information overload, is compatible with interventions used in the various stages of the ISP. The teacher and school librarian, working as a team, can help students become literate—and information literate—as reading strategies become interventions for information processing as well as reading comprehension in both the classroom and the school library.

The Greek Heroes Project: Guided Inquiry as a Tool of Evidence-Based Practice

How does the marriage of reading strategies and the Information Search Process work in a sustained unit of inquiry? The Information Search Process is the backbone of Guided Inquiry:

Since reading strategies are compatible with the ISP, a Guided Inquiry unit on Greek heroes was another way I could support my students’ literacy development in the context of information processing and inquiry learning (Kuhlthau, Caspari, and Maniotes 2007). Students worked in collaborative groups of three to create a poster about a Greek hero; the poster was to contain a synthesis of stories about him, his family tree, a picture of him, and an original poem celebrating his life. The assignment articulated student roles: researcher, organizer, and poet. Group members self-selected their roles and worked together to collect, sort, and process information.

Students were provided with a short dossier (created by their teacher) about their hero. This dossier was the foundation of their work and provided opportunities for them to engage in annotation, decide what was important, use their prior knowledge of Greek mythology, and develop a plan for how they would gather their information. Although they did not experience the selection of information sources, learners...
were able to experience the ISP and Guided Inquiry as a way to learn about Greek mythology and improve their reading comprehension and critical thinking. Students’ ability to annotate was the key to their success in this unit of inquiry. Annotation helped them, particularly in the Focus Formulation ISP stage, so they could complete their work within three days.

As evidenced in two examples of their work in figures 3 and 4, students were able to accurately depict information in a clear, organized format that they designed.

Students’ work product provided the teacher with evidence of the success of her instruction. In the rubric for this project, their teacher also learned to collaborate with the school librarian. Inquiry and literacy development were no longer confined to the classroom, and information literacy was no longer confined to the school library. Literacy and information literacy could be taught together in a way that generated rich evidence of student progress and teaching success.

**Assessment of Student Work and Evidence-Based Practice**

Teacher effectiveness has been a strong theme in education reform in the past decade (Danielson 1996; Marzano et al. 2012; Marzano and Toth 2013; Darling-Hammond 2013; Weisberg et al. 2009). Frequently, the research explores the assessment of teacher competency through student achievement. Evidence-based practice is one way teachers collect evidence of their effectiveness.

Student work provides a road map for instruction when assessment instruments are aligned, consistent, and frequently employed to measure student growth. In the ELA curriculum students are assessed at the beginning of the school year on four main concepts articulated in the Common Core State Standards for grades nine and ten: theme, characterization, language, and written expression. Students are asked to read a fictional story, annotate it, and answer four questions based on these standards. Figure 5 is a sample of a student’s annotation at the beginning of the school year prior to literacy instruction.

The student marked the text presented to him by underlining, drawing attention to the word “dreaded.” He did not respond with notations or remarks, nor is there any evidence of his consistent interaction with the text. The only evidence of interaction lies in the box he drew around one word, but what does that mean? The teacher can draw significant conclusions from this sample. The student does not understand how to determine what's important in a text (Robb 2000; Harvey and Goudvis 2007). The lack of ability to filter and sort information in the text indicates that he does not know how to use his prior knowledge to organize information nor can he adequately synthesize information as he reads. He poses no questions, indicating he doesn't know how to engage with the text. He is not
THE WAY THE STUDENT HAS ANNOTATED THE TEXT DEMONSTRATES HIS ABILITY TO ENGAGE WITH IT.

Figure 5. Example of student annotation before literacy instruction.

Figure 6. Same student’s annotations one week later after direct instruction on annotation strategies.
Figure 6 is the same student’s work after one week of direct instruction on annotation strategies based on reading strategies. This instruction provided the student with specific, concrete ways to connect what he is reading with what he needs to do. Annotation instruction helps students determine their own learning outcomes based on the questions or tasks they have been asked to perform. When students have clarity and focus, two expected outcomes of the Information Search Process, they can more effectively use information.

He is questioning the text, making notes about words and vocabulary, and writing comments about the character acting benevolently “cause he loved her to [sic] much.” Underlining is meaningful because the student connects words or sentences to thoughts and ideas, sometimes using arrows and lines. The way the student has annotated the text demonstrates his ability to engage with it. For example, he has underlined “She promised” and asked, “Why would Zeus bealeave [sic] her if she lied to him before?” He is questioning why Zeus would release his wife, Hera, from her prison solely on her promise, when she has been proven a liar in the past. The student now has notes that help him to ask questions and reach clarity about characterization and theme with more precision and focus. When this student engaged in the Greek Heroes Guided Inquiry project, he was able to successfully navigate the information he found and to decide what was important and what didn’t need to be included in his group’s project.

When students can more effectively and strategically engage with text they can become more successful inquirers. Their inquiry and the journeys they undertake can guide teachers through the curriculum, through their teaching, and through their self-assessment of their effectiveness.

### Works Cited:


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Caroline Gordon Messenger, a teacher for the past fourteen years in grades 6–12, earned her Master’s of philosophy in the sociology of education in 2012 from Lancaster University. She contributes to the professional education blog CompetencyWorks and speaks nationally about standards-based learning, literacy, and best instructional practices. She currently teaches English and journalism at Naugatuck High School in Connecticut.
ENABLING INQUIRY LEARNING IN FIXED-SCHEDULE LIBRARIES
An Evidence-Based Approach

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What’s the Problem?

When I accepted my first job as a school librarian I was eager to put into practice knowledge about the Guided Inquiry approach I had gained from my MLIS studies at Rutgers. In my second year on the job my former professor Dr. Carol Gordon visited my school and asked the question that started a journey of inquiry into my own professional practice: “What is the most difficult problem you face in your job as elementary school librarian?” Not surprisingly, my response was the fixed scheduling. As many elementary school librarians know, the scheduling of library instructional time is typically a weekly “special.” This fixed schedule model limited my contact with students to a thirty-minute period each week, resulting in information literacy instruction primarily through stand-alone lessons rather than inquiry or resource-based learning. The fixed schedule inhibited teaching to AASL’s Standards for the 21st-Century Learner (2007) since the schedule is not conducive to time on task, a critical component to successful inquiry that promotes critical reading and critical thinking.

In several ways a fixed schedule inhibited meaningful and collaborative teaching. Classroom teachers and I had no common planning time, so the schedule did not support time for meetings with a classroom teacher to identify teaching goals, plan an inquiry unit, assemble resources to support the unit, teach information literacy in the context of a curriculum unit, or provide information and technology support. Teachers and I had no time to do summative assessment, collaboratively grading student work, or do formative assessment of student progress to get feedback on...
teaching effectiveness while giving students the chance to revise their work. We had no opportunity to evaluate a unit of inquiry and revise it for the next year.

In my first year as a school librarian, aware of the obstacles inherent in my fixed schedule but determined to give my students an information-based inquiry experience, I developed an inquiry unit for fifth-grade students to be conducted solely during library class time. The authentic learning task of the unit required students to work in pairs as architects to design a monument memorializing an individual who played an important role in the American Revolution. Students were given time and resources to research a variety of people and battles and to choose those that interested them. Students presented their designs to the class at the end of the unit.

It was a great unit. Students seemed engaged and gained experience in note taking, citing sources, demonstrating creativity in their final designs, and sharing their ideas with classmates. Sounds ideal, right? Yes, except the unit took almost five months to complete! Clearly, this situation was far from ideal. Dr. Gordon’s question prompted me to reflect on the problem, and I realized I had just begun my own inquiry to improve my teaching practice.

Dr. Gordon reminded me that an evidence-based approach could lead to an action plan. She suggested that digital technology, when used to deliver each stage of the Information Search Process (ISP), might help overcome the problems presented by fixed scheduling in the school library.

How School Library Research Informed Our Action Research

Fixed scheduling is well-researched in the school library literature. We know from this research that information skills taught in isolation from curriculum content are not as relevant to students as skills taught in the context of what they already know (McGregor 2006). Constructivism is an approach to learning that posits individuals construct their own meaning as they link new knowledge to prior knowledge (Bruner 1960). In addition, school library research has produced a model for Guided Inquiry (Kuhlthau, Maniotes, and Caspari 2007), the Information Search Process (ISP), which is a staged, predictable model of how students will feel, think, and act as they go through Task Initiation, Exploration, Topic Selection, Focus Formulation, Information Collection, and Presentation (Kuhlthau 1983). Each of these stages presents opportunities for interventions that can be prescribed for an entire class or for individual learners to help students through each ISP stage. These stages informed our design of the inquiry unit as the school library and the classroom became equally important venues for helping students. A spiraling model of collaboration consisting of Carmela Valles, a fifth-grade classroom teacher, and Michelle Hawley, our district’s instructional facilitator who has expertise in problem-based learning. We collaborated to develop an inquiry unit on the American Civil War. One of my goals for the unit was to use action research as a way of determining how successful a blended learning environment—incorporating both digital and face-to-face teaching—could be in supporting Guided Inquiry.
emerged whereby the school librarian and the classroom teacher used the ISP as a collaboration tool. This collaboration provided continuity and sustainability to the inquiry unit since students did not have to wait a week to return to the school library to continue their progress through the ISP.

What Did Our Action Research Look Like?

Action research is a continuous spiral of reflecting, planning, and acting (see figure 1). In year 1, as an action researcher, I reflected, identifying a problem in practice. I reflected on the problems associated with my first attempt at inquiry under a fixed schedule as described above.

In collaboration with a fifth-grade teacher and the district’s instructional facilitator, we created a plan, using Guided Inquiry, to identify stages of the ISP to structure students’ inquiry in the classroom and the school library through physical and virtual contact with resources and help. Action was taken when our team taught the inquiry unit on the American Civil War. As we taught we observed and collected evidence of our teaching, and student progress. These activities led us to reflect as we analyzed the evidence and drew conclusions about our teaching and our students’ learning. Throughout the unit we carefully observed student behaviors and responses and collected evidence to assess the success of the unit. We hope to use this evidence to make positive changes in future inquiry units. In year 2 we will revisit the American Civil War unit to reflect again, this time identifying the teaching and learning problems we want to address through planning the revision of the project. In this second year we will follow the cycle, acting through teaching, observing by collecting evidence, and going through the action research spiral as we had done in the previous year. The process will continue in year 3 as the team continues to work together to do better each time.

We began planning the unit several months prior to its kickoff to allow enough time to create a digital environment that would lend itself to delivering the unit and collecting evidence of student learning. During this planning period we designed the authentic task, determined learning objectives, and created a schedule for the unit along with appropriate learning interventions for the ISP stages. We worked on the virtual learning environment, which we named 3D Library Learning (see figure 2). "3D" refers to the three dimensions of our unit, in which learning was structured to take place in the classroom, school library, and through the website. The site can be accessed at <https://sites.google.com/a/summit.k12.nj.us/3dlibrarylearning>.

The photographs shown in figure 2 are "clickable" at the website so students could easily access the resources used during classroom learning. Similarly, clicking on the photo of the library provided access to online resources selected by me, the school librarian, along with
We organized 3D Library Learning around the stages of the ISP with guiding questions for each stage. Among the guiding questions for the first stage of the ISP (“Tuning in /Finding out”) were: “What do I know about the topic? How do I know it? What experiences do I have with this topic? What do I want to know?” Among the guiding questions for the second stage (“Sorting out”) were: “What information helps answer my questions? What key words help me make sense of the information I found? Do I need to find more information? What are my questions now?” (Gordon 2012).

Our first opportunity to act and observe took place during the “Museum Walk” we staged in the school library to kick off the delivery of the unit. Taking advantage of an opportune slot of “open” time in the library schedule, for almost two hours students examined, reflected, and wrote journal entries about primary source artifacts and images. These Civil War resources were borrowed from a local museum. We observed that student engagement was extremely high as interest in the subject matter intensified immediately. Students were placed in small groups to share their interests and generate questions about the Civil War based on their Museum Walk.

My team then took time to reflect on what we observed about the high level of student engagement. We planned ways to maintain the engagement level by making greater use of Edmodo, which students thought was really “cool” when it was presented to them in class. We collected evidence in the form of student responses to assignments, reflection surveys, and blog posts on Edmodo.

We continued to act while teaching and to observe students learning throughout the course of the unit. We consistently observed sustained high levels of engagement in the unit. I was struck by how intently students focused on their topics and stayed on task in the library. During one school library session, as students pored over print and/or online materials, reading and taking notes, I overhead a boy comment to another student, “Dude, did you know the Civil War happened before World War I? I didn’t know that!” Observing students in the act of their own “ah-ha!” moments was priceless.

Many of our actions took the form of assignments posted in Edmodo so we could observe student understandings and learning via their responses. For example, early in the unit students were asked to define the word “civil” and list where they had heard this word used. Responses were used to provide the teaching team with information regarding students’
OUR GREATEST SUCCESS was proving we could collaborate on a unit using Guided Inquiry despite the limitations of fixed library scheduling.

prior knowledge. At three points in the unit (initiation, formulation, and assessment) students completed a "Research Reflection Survey" online via Edmodo. The survey asked students to write in free form what they knew about the Civil War. These posts served as formative assessments of student knowledge. A free-form response indicating what students found easy and/or difficult generated evidence about the level of interest and engagement as well as what students were learning. We asked students to create their own research questions about the war and post them on Edmodo during the formulation stage of the ISP. By observing the responses to these online assignments we were collecting formative assessment data on individual student progress. This helped us move students through the inquiry process while monitoring interest and engagement. For example, after the Museum Walk students posted responses by describing an artifact or image that captured their attention. One student wrote:

The artifact that captured my attention is the reward sign. The reward sign looked like a lost cat or dog sign like the ones we see today. It didn’t feel very good having to see that this was a sign that was used to find a person not an animal.

Another student wrote:

The artifact that captured my attention was the picture of the slaves on the boat. The white men were punishing them badly. I learned many things [from this artifact]. An example of that is…how different the black [people] were treated from the white [people].

When students posted their research questions during formulation we could observe the direction each student wished to go; these observations helped us understand how to guide them toward narrowing their topics by refining their ideas into researchable questions. One student was intrigued by a woman’s fan she saw in the Museum Walk—especially after having read how an entire language was developed around fans. Her initial question was "How and why did they create an entire language around the fan?" By observing her interest in the female perspective we were able to guide her toward relating this interest to the war itself. In a later post she articulated her interest this way: "I think my question will be about the women in the war and that time.” Ultimately, her question became "What different jobs did women do during the war?"

What We Learned

At the end of the unit, Carmela, Michelle, and I met to debrief and reflect on the unit, identifying successes and opportunities for improvement. Our greatest success was proving we could collaborate on a unit using Guided Inquiry despite the limitations of fixed library scheduling. Taking advantage of technology, we seamlessly linked library and classroom learning in a spiraling collaboration model, alternating instruction between the school library and the classroom. Through continuous communication we were cognizant of where our students were in the research process and what was needed to push them forward. Another hallmark of our success was the high level of student engagement and interest throughout the unit. Making use of the evidence we gathered through our action research we were able to build on the
high engagement generated during the Museum Walk; we developed high-interest discussion prompts and assignments posted to Edmodo. Students enjoyed the virtual component of the unit and seemed happy to complete the required assignments and engage with teachers and classmates online. We concluded that students’ exploring and creating their own research questions within the context of an authentic learning task were successful, contributing to the high level of engagement. Questions were wonderfully varied, representing students’ interests. They included:

“How did the slaves cope with bad treatment?”

“How did the living conditions of the soldiers affect their health?”

“What role did photography play during the Civil War?”

We realized the framework of this unit could be replicated across the district with future collaborations building on this initial experience. The idea of using a virtual library site and incorporating Edmodo (or some other online tool) to collect student responses and data within a Guided Inquiry unit can be used by any team of teachers and librarians willing to give it a try. The 3D Library Learning website has potential for teaching sustained inquiry units for any content area and can easily be modified to work with other grade levels.

One of the biggest challenges we faced was the timing of the unit. Between standardized testing and year-end activities May was not an ideal time to introduce an inquiry unit. Future collaborations will be planned for earlier in the year. We also realized we did not scaffold the creation of research questions well enough prior to the unit. Previous instruction and practice with this skill would be helpful before students begin the unit. Lastly, we found the discussion thread in Edmodo required more practice than we anticipated. Students began the unit with no prior experience using Edmodo so they needed time to work through a learning curve while engaged in the unit of study. Prior experience with blogging would expedite their learning.

Conclusion
Reflecting on our practice is an important component of professional development. Action research provided an excellent framework for doing so. By taking the time to think about how to overcome the frustrating aspects of a fixed library schedule I was able to put into place an action research study of my own practice using evidence gathered from student work. Combining evidence-based practice within the Guided Inquiry framework helped me understand how this process can work and how successful a unit designed in this way can be as measured by student engagement and learning. Having the experience of a fully collaborative unit that made use of library resources and my expertise in teaching information literacy was rewarding and has given me the confidence to strive to develop future units based on this model.

Works Cited:
Evolving LEVERAGING
with Evidence

NEW TOOLS FOR EBP
A Little Background on Evidence

For as long as I can remember, I’ve counted: books checked out, bodies through the door, reference questions answered, classes taught, teachers with whom I collaborated, and website visitors. Counting generated data that could be embedded in colorful charts and professional-looking reports. These efforts captured a little of what happened in my school libraries.

Back in the day we called these data “output measures” and used them to justify budgets, maintain staffing, rethink scheduling, and advocate for our programs. Those metrics troubled me. They inspired systemic competitive cheating, and they didn’t tell the stories that needed telling. These “measures” had little to do with asking good questions, selecting quality sources, synthesizing information, and ethically and creatively constructing and communicating new knowledge. They didn’t address administrators’ achievement concerns or faculty’s engagement issues. They did little to capture real impacts our school library program made or my accountability to the instructional team. Better data were all around me. I wasn’t capturing it. I missed the connection between data and results and lost sight of essential questions. How does my work make a difference in improving teaching and learning? What is my value to the learning culture? How might I use evidence to improve my practice and enhance learning?

Evidence-Based Practice as Evidence of Leadership

Focusing on evidence-based practice (EBP) aligns with the school librarian’s leadership role acknowledged by AASL in Empowering Learners: Guidelines for School Library Programs (2009) and in AASL’s newly adopted mission statement. “The American Association of School Librarians empowers leaders to transform teaching and learning” (AASL 2014). Leadership through EBP is also a focus in the National Board for Professional Teaching Standards (NBPTS):

Accomplished library media specialists provide consistent and visionary instructional leadership. Specialists are catalysts for purposeful change that engages and challenges students in uniquely meaningful ways and that places them at the center of the learning process….Specialists use informed, evidence-based practices to identify strengths and weaknesses in library media programs and build knowledge to make informed decisions and modifications which result in stronger library media programs. Library media specialists use current technologies to gather, analyze, and share the results of evidence. (NBPTS 2012, 41–42)

Ross J. Todd explained that EBP “is fundamentally about professional practice being informed and guided by the best available evidence of what works” (2008, 17). Facilitating the availability of evidence are new technology tools and platforms that make student work more transparent and the collection, organization, and analysis of evidence richer and easier. One measure is the story of a library’s impact on its school’s learning culture. Let’s examine a variety of strategies for rethinking available local data and new tools that facilitate gathering, analysis, triangulation, and application in improving teaching and enhancing learning.

Exit Interviews and Focus Groups

Nearly every year, as a high school librarian, I asked focus groups of seniors what they learned. Focus groups of six to ten students offer the researcher/practitioner a lens into respondents’ experiences, feelings, and attitudes. Interactions within the group help participants build on each other’s ideas and allow the researcher to evaluate levels of consensus and disagreement. In a school setting students may find small groups less threatening than one-on-one student–librarian conversations. The questions we asked included:

- What have you learned during our years together?
- What have you learned about finding information?
- What are your favorite databases? Which ones have been the most useful?
- How do you know when you’ve found a quality source?
- What have you learned about communicating what you learned during your research?
- What have you learned about technology applications from our library program?
- Have you learned anything that friends from other schools did not?
- What did you use on our library website?
- What did you like about our library website?
- What would you improve about our library website?
- What parts of the research process are you comfortable with?
- What parts of the research process do you feel are the most challenging?
- Which was your favorite research project and why?
- Which was your least favorite research project and why?
- Do you feel ready for university research?
What is the one thing you most wish you could have changed about our library?
What will you miss most about our library?

I transcribed and coded these conversations and shared major patterns in my reports with teachers. Together we examined what student voices revealed about their learning. The issues and deficiencies we identified guided our future instruction. Feedback about our website guided my hybrid practice, allowing me to continually improve our virtual resources and instruction. Over the years, as school and library issues emerged, my focus group questions were, well, more focused. I solicited student feedback about rubrics, academic honesty, research assignments, changes in reading habits, and essentials for a makerspace.

Video evidence can stand on its own, but it is possible to approach its transcription and analysis systematically and scientifically, especially if you need to present the data efficiently. New free and inexpensive software is available for qualitative analysis.

The app oTranscribe <http://otranscribe.com> is a free open-source tool for importing video and audio files into a player and easily pausing, rewinding, editing, and exporting.

Dedoose <www.dedoose.com> allows us to collaboratively code, sort, and visualize transcribed data.


Exit Tickets/Slips, Response, Reflection

When we seek immediate, formative evidence of understanding, an exit ticket or slip provides feedback about what was learned and asks learners to reflect and synthesize. Traditionally, responses have been shared on index cards or sticky notes. Prompts might include the following.

- Share three takeaways from today’s class.
- Share one lingering question.
- What did you/your group accomplish this period?
- What were the best sources you discovered today?
- Which criteria did you use to evaluate the resources you selected today?
- How might you apply what you learned today to a situation outside school?
- I didn’t understand . . .
- I would like to learn more about . . .

When sorted, exit tickets reveal patterns of understanding as well as issues, allowing us to identify and address challenges faced by an entire class or by specific learners for whom we might offer extension activities.

Several paper-free exit ticket strategies allow us to more easily archive, analyze, and track learning. Exit ticket graffiti can be powerful and sticky. Individual students or groups can leave evidence of their learning or lingering questions on flip chart paper or white boards. One strategy is to create a Likert scale-like chart, or one with rubric-style columns, and invite learners to use markers to “dot” their level of understanding. Take photos of this graffiti for later comparison and analysis.

"Clickers," or physical student response systems, helped us take the pulse of a class or capture specific evidence of learning for groups or individuals. Several digital tools are less expensive, perhaps more flexible, can function as exit ticket options across platforms, and are easily embedded in your Moodles, wikis, LibGuides, and sites. For example, Google Forms <https://docs.google.com/forms/create> is a Google Drive application that allows easy creation of sophisticated polls and surveys, generating immediate charts and supporting easy data dumps into spreadsheets. Socrative* <http://socrative.com> is more than a student response system. This free tool works across devices, supporting
use of quizzes, quick questions, a competitive game, or a predesigned exit ticket to assess learning and understanding. It generates spreadsheet-based reports.1 Padlet*<http://padlet.com> is a flexible, free tool for gathering sticky-note responses. Notes may include links (to projects) and media.

Exitticket<http://exitticket.org>, a student response system, offers real-time feedback and performance metrics. Assessments may be shared with multiple teachers and tracked longitudinally. TodaysMeet*<http://todaysmeet.com> is a back-channel favorite that allows users to create a room and add responses to any prompt.

Poll Everywhere*<www.polleverywhere.com>, a cross-platform polling tool, includes multiple-choice and open-ended questions, clickable-images, and discourse options.

Flipgrid<http://flipgrid.com> is a reasonably priced, flexible video-response tool built for education. It allows students to record ninety-second video responses in a grid—no sign-up necessary. Multiple questions in a grid offer opportunities to show growth from a baseline or can serve as formative assessment.

In-Depth Surveys
One year, classroom teachers came through my office in despair about plagiarism. Together with the chair of the English department I developed an anonymous online survey. The evidence of a cheating culture was so compelling it launched a school-wide initiative to improve assessments and strategies to inspire academic honesty. Using the survey as a baseline, we implemented follow-up climate-check surveys to monitor progress. Free survey tools include:

Google Forms<https://docs.google.com/forms>
Survey Monkey<www.surveymonkey.com>

Examining Student Work
Student work talks. It may talk louder, more eloquently, and more authentically than test results, and it could be our most important and most overlooked data. It gives us information about how individual students perform on an assessment, but when examined collaboratively, over time and with protocols, student work presents opportunities for reflective dialog about the effectiveness of our instruction and assessments. We can connect the work of individual learners to issues identified by high-stakes assessments.

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1 For more about Socrative, see the Technology Quest column in the November/December 2014 issue of Knowledge Quest.

* App/website named an AASL Best App/Website for Teaching and Learning.
We can have honest conversations about pertinent questions. To what degree have certain groups of students met our learning objectives and growth goals? Were our instructions on rubrics clear enough?

When we look at student work in a focused way over time, we can make claims. "After three instructional interventions in the form of interactive library lessons, 80 percent of Mrs. Brown’s students were able to support their arguments with solid evidence." We can plan instruction for the remaining 20 percent and report on our individualized remediation efforts.

A traditional issue of library practice is our limited access to formative and summative assessments. Teachers and school librarians can now share, guide, celebrate, and reflect on together on student work. Sharing features on cloud-based tools make it possible to take a retrospective and focused look at samples of work. We can look for student success or deficiencies in: discerning point of view, identifying compelling evidence, finding relevant high-quality sources, constructing an argument, introducing and embedding quotes, synthesizing resources, and organizing information.

Transparent access helps guide learners in creating reflective portfolios. Using a variety of media, learners may now share and reflect on their work in stages on collaborative writing and journaling platforms. We can visit their efforts on their blogs, wikis, Google sites, and Google Classroom. We can also join them in their books as they read, while we gather evidence of progress.

Among our strategies for looking at student work are new portfolio tools.

**Easy Portfolio**<http://thepgeekkapps.com/portfolio> makes it easy to create classes and gather visual evidence of student work within a portfolio, regardless of the medium in which the work was created. Records might include photos, videos, audio, music, Web links, text entries, or digital files from Dropbox or e-mail.

**Educlipper**<https://educlipper.net> is a Pinterest-like, Web-based tool or app that allows teachers to create assignment boards on which students clip or add their content. Educators can offer video, audio, or text feedback.

**Bibliographic and writing tools** facilitate transparent sharing for study and analysis.

**NoodleTools**<http://noodletools.com> is an integrated suite for note taking, outlining, citation, document archiving, annotation, and collaborative research and writing. NoodleTools allows students to easily share their work with teachers for comments and guidance.

**EasyBib School Edition**<http://info.easybib.com/easybib-school-edition>, a premium version of the free tool, allows students to share their notes, outlines, and sources in an environment that integrates with their Google Docs.

**Google Classroom**<http://www.google.com/edu/classroom>, introduced in the 2014–2015 school year and available to schools with Google Apps for Education accounts, simplifies creating, collecting, and sharing student work with easy-to-create Google Drive folders and real-time feedback and assessment.

**Kaizena**<https://kaizena.com>, a feedback application integrated with Google Docs and Google Slides, offers opportunities for both voice and text conversations around student work. Artifacts are organized into boxes by course, grade, or team. Powerful, newly launched features allow teachers to tag, track, and rate skills, and save feedback for future use. Tags can connect to rubric criteria and Common Core or local standards.

**Reading More Transparently**

It is possible to open the reading experience so teachers can join in and examine the experience.

**Subtext**<http://www.renaissance.com/products/subtext> allows teachers and students to interact within digital books—to ask questions, share notes, and embed polls, videos, and Web links in digital text. Teachers can create student groups within the text and then track and guide progress. **Curriculet**<http://www.curriculet.com> allows you to embed a layer of questions, quizzes, and media annotations into any reading assignment.

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*App/website named an AASL Best App/Website for Teaching and Learning.*
More Transparent Instruction and Planning, and Generous Sharing

Curriculum maps and learning targets are easily shared and offer evidence of the school librarian’s role in instructional planning and design. Google Docs and Google Sheets facilitate classroom teacher-school librarian partnerships and feedback. Immediately after instruction, teachers and librarians do not need to make time for a face-to-face debriefing when it is so easy to reflect on a unit’s or lesson’s effectiveness and then revise or comment via Web-based documents. In addition to the edits we did on our LibGuides, wikis, and Docs, I frequently shared brief Google Forms with my partner teachers to capture an assessment of our work together. I would ask two questions: What worked? What can we do better next time? A growing number of school librarians use their blogs to share their experiences, instruction, students’ projects, and honest reflections of their practice. These blogs present school librarians as thoughtful educators and archive their experiences for year-end reports. These leaders affect practice well beyond their buildings, providing inspiration for the profession. This Pinterest board links to several prominent school library bloggers (<www.pinterest.com/joycevalenza/teacher-librarian-bloggers-and-other-blogging-frie>.

Analytics

Web analytics can tell stories, too. We have the capacity to count in more meaningful ways. Our wikis, sites, and catalogs offer insight into our impact on reading culture and how we support learning through our virtual, hybrid, flipped, or embedded instructional presence. Subscription databases offer rich usage reports on number of sessions, searches, retrievals and full-text retrievals, and total time spent. Some track types of sources students use. These data can be connected to specific teachers and lessons.

For many librarians who create LibGuides (<http://help.springshare.com/lgstats>) to support instructional units, granular usage statistics allow examinations of popular pages and links, downloaded documents, and opened books. (LibGuides plays nicely with Google Analytics.) These data can help you determine whether the money you spend on resources supports student learning. You may discover you need to promote a valuable resource more heavily or you need to rethink a purchase if a product is legitimately underused. You may need new ways to market these products on your LibGuide or site, incorporating Web-design strategies. LibGuides allows librarians to embed forms and surveys to help assess the usefulness of these promotion efforts. Overall, these data allow you to assess the reach and the scale of your hybrid practice.

Our catalogs can tell stories well beyond how many books were checked out. Keeping issues of privacy in mind, you can examine usage data to explore how targeted student populations behave, e.g., reading habits of ESL classes. You can get granular and use individual students as representative personae to examine which books struggling readers check out and, based on specific interventions, how reading patterns might change.

Leveraging Your Camera

Whether on your phone or separate devices, cameras—both still and video—are powerful ways to capture evidence. The activity in your space—your programs, displays, author visits, and other events, and the way your space is continually used by students, teachers, and parents—is often lost evidence of your contribution to the learning culture. What’s on the tables at the end of a period or the end of the day, or on a returns cart, or on your hold shelf? Your phone/camera can capture a record of this ephemeral evidence of student activity or learning. Don’t do this alone. Assign a student photographer and archivist.

Take pictures of students working and learning. Use your camera’s send feature to create automatic galleries. If your school allows it, leverage platforms such as Instagram and Flickr, Pinterest, or YouTube or Vimeo channels for their abilities to sort, tag, and create albums. You might also store your evidence on a private platform such as Dropbox.

If you wonder what your physical space looks like from a student perspective, give students video cameras and ask them to walk around the library and reflect on the space. What I learned was eye-opening. Students used and owned the space in many different ways. Some saw various spots in the library as their personal offices or special

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Synthesized evidence of a school librarian’s effectiveness can be presented by means of digital storytelling, an interactive poster, or an infographic.

places of escape. One young woman saw the library’s entry space as her own fashion runway. An AP student gushed about her love for the books on a few special shelves.

Hyperlapse (<http://hyperlapse.instagram.com>), a new app by Instagram, allows time-lapse filming of library activity. Imagine shooting the action around your makerspace, capturing library-hosted debates, wax museum exhibits, or book clubs. Australian librarian Tania Sheko considers this strategy a “succinct way of sharing invaluable data as evidence of the number of students using the library (in this case 30 minutes of recess), its energy, and the wonderful range of collaborative and social activities that take place as recess activity at Melbourne High School Library” (2014).

Displaying and Sharing Evidence of Practice

Synthesized evidence of a school librarian’s effectiveness can be presented by means of digital storytelling, an interactive poster, or an infographic.


Bad News Is Not Bad

Let’s be honest about honesty. Not all evidence is going to be pretty. Exit interviews, for me, were sometimes profoundly disappointing. My reading statistics declined for several consecutive years. As with any research project you learn from what the evidence tells you. Bad news presents a baseline, a realistic situation upon which you build a plan of action and grow as a professional.

Evidence informs our practice, helps us plan for program growth, and ensures that, indeed, learners are learning. It’s also about leadership. Careful use of selected emerging tools presents new models for teachers and students to leverage technology for their own collaboration and analysis. Innovative approaches to the gathering and analysis of evidence demonstrate the school librarian’s vision, accountability, and his or her professional leadership within the educational program.

Joyce Kasman Valenza is an assistant professor of teaching and director of the MLIS Program at Rutgers University School of Communication and Information. She writes the NeverEnding-Search blog for School Library Journal and has recently coauthored an ALA Library Technology Report on social media curation.

Works Cited:


Sheko, Tania. 2014. Personal e-mail correspondence. September 13.


* App/website named an AASL Best App/Website for Teaching and Learning.
Let me be clear from the start: my action research journey in the land of evidence-based practice was not my idea. I was lured by our profession’s finest scholars who advocated for reflective dispositions for practitioners to improve their practice and demonstrate the school librarian’s critical role in teaching and learning. In their book *Tales Out of the School Library: Developing Professional Dispositions*, Gail Bush and Jami Jones assert that the dispositions in the action strand of AASL’s *Standards for the 21st-Century Learner* “become the de facto dispositions for school librarians, because, in the words of NBPTS [National Board for Professional Teaching Standards], accomplished teachers are ‘models of educated persons, exemplifying the virtues they inspire in students’” (2002, 4). Bush and Jones provide an overview of those dispositions, adapted from the AASL standards:

- Display initiative, engagement, emotional resilience, persistence, curiosity;
- Demonstrate confidence, self-direction, creativity, adaptability, flexibility, personal productivity, leadership, teamwork, motivation;
A Personal Epiphany and Journey with Evidence-Based Practice

Susan D. Ballard  sdballard@comcast.net

• Maintain (and employ) a critical stance, openness to new ideas;
• Use both divergent and convergent thinking;
• Have (and show) an appreciation for social responsibility. (2010, 4)

In my personal quest to acquire these dispositions I realized that action research (AR) provides the tools I need to ask critical questions, gather and navigate through rich evidence, and transform what I learn from evidence into action. My quest for answers would help me develop and nurture the attitudes that enable best practice.

My journey began in October 2001 at AASL’s 10th Conference and Exhibition in Indianapolis. I attended “The Research Process and Evidence-Based Practice” presented by Carol Kuhlthau and Ross Todd from Rutgers University. By chance, Carol Gordon was sitting next to me. At the end of the presentation we began a conversation that lasted for four years. I confided that the session had me noodling about the district school library media and technology program I supervised in Londonderry, New Hampshire. Although the program was named an AASL School Library Media...
Program of the Year in 2000 I sensed that we needed to take a next step, but I wasn’t sure where to take it. I was open to new ideas!

My epiphany was an “a-ha!” moment generated by the vision Kuhlthau and Todd described as evidence-based practice. At lunch my conversation with Carol Gordon made me curious as we sketched out a plan on a paper napkin. Could AR move our school libraries to another dimension? Could AR improve our quality of instruction? I wanted our school librarians to be more reflective about instructional design, delivery, and assessment. I had to figure out a way to get started with AR by the first of the year.

What was I thinking? Did I have the emotional resilience and confidence to make this happen in my district? I realized the timing was perfect for submitting a proposal to use the district’s Title V funds targeted for improving the quality of education. And, as luck would have it, I was the district administrator in charge of the grant! I decided to take the initiative to develop an AR project. When funding was approved I realized I would have to be persistent to get the school librarians on board. The time crunch was challenging, and it was already the middle of a busy school year. The ambitious plan Carol and I hatched meant a course adjustment in the middle of the school year. I was determined to take a critical stance, stand my ground, and hope that the teamwork characteristic of the hard-working librarians would win them over. What happened next was something that I sort of regret—maybe. I resorted to trickery and subterfuge.

I invited Carol to the December department meeting held just before the holiday break. I deliberately dawdled in sending the agenda, which cryptically noted, “Dr. Carol Gordon, Boston University—Presentation.” I am not sure what the librarians thought, but I knew they were familiar with Carol’s work, so I was confident that they would take in stride the prospect of her visit—which they did. When they arrived they greeted Carol politely. Unaware of my chicanery, Carol launched into her description of action research as:

- Problem-focused;
- A solution-oriented investigation;
- Context-specific insider research;
- Future-oriented to some action or cycle of actions;
- A systematic, intentional inquiry that investigates professional practice to understand and improve work and;
- A tool for evidence-based practice.

And then the other shoe dropped! Carol talked about how action researchers create a plan to identify a problem in instructional practice, recognize evidence in student work, collect evidence through Guided Inquiry and authentic teaching methods, analyze the evidence, and share with the school community what they have learned. So far, so good! Everyone was listening and interested. Then Carol revealed our plan. Each school librarian in the district would develop and execute her own action research. The timeframe for each librarian to develop an AR proposal was four weeks. Yikes! I could see the deer-in-the-headlights looks. I quickly ended the meeting. Phew! Divergent thinker that I am, I skillfully avoided the librarians’ phone calls and e-mails for the next few days and waited for the calendar to run down to recess. Then, sure enough, just after we returned, Carol sent a template for proposal generation similar to the one in figure 1.

I observed from the sidelines via e-mail that it was slow going at first, but one by one the librarians engaged with AR. Carol’s mentoring approach was to ask each action researcher to connect her proposal to educational theory. In Carol’s initial presentation she reviewed the work of Kurt Lewin, the father of AR, Carol Kuhlthau’s Information Search Process, and key ideas from major educational theorists: Benjamin Bloom, Jerome...
Bruner, John Dewey, Howard Gardner, George Kelly, Jean Piaget, Joseph Renzulli, Robert Sternberg, and my favorite Lev Vygotsky—I love his “zone of proximal development.” She emphasized that the powerful connection between these theorists’ work and what is known about how people learn empowers us to contribute, in our own way, to the knowledge base as we deepen our understanding so that we can improve our work. One of the school librarians exuded strong self-direction in her comment about theory: “Now I know why I do what I do.” This opened the door for school librarians to be more creative in designing instruction.

Another school librarian observed we were traveling “the bumpy road of action research.” We were sustained and guided by our knowledgeable and well-organized research mentor and by one another. As a result, our practice forever changed, and so did we. We learned how to pose researchable questions and write proposals. Using journals, surveys, interviews, focus groups, and observation we collected data that we shared with collaborating teachers, administrators, parents, and members of the school board. Some questions we explored were: How can we move high school students away from using only general search engines and toward delving into subscription databases? How do middle school students take notes, and how can we teach this skill better? Can third-grade students think abstractly through project work? As the librarians were conducting their AR and students were engaged in inquiry units, Carol Gordon was conducting her own research on the three-dimensional model she developed for the Londonderry Project. Her 2006 paper, “A Study of a Three-Dimensional Action Research Training Model for School Library Programs,” available in School Library Research <www.ala.org/aasl/slr>, gives a full description of the project.

One of our most powerful uses of action research allowed us to gain insight into students’ understanding of ethical use of information. This focus arose from reactions to our use of an online service to detect plagiarism. While the educators saw the service as a prescriptive tool to help students understand citation and attribution, parents thought this type of service should not be necessary if we were doing our jobs. Hmmmm—point well taken.

To identify the issues and assess prior knowledge and attitudes of students and teachers, we decided to adapt a survey developed by Southern Connecticut State University (naturally, with permission) and to apply skills we had developed in the design of two earlier AR projects. We developed age-appropriate scenario surveys, and students decided whether or not the actions described were examples of ethical use. The high school version was administered to students in grade ten; the elementary version was administered to students in grade five. Another survey was administered to high school teachers to determine teachers’ perceptions of how often students engaged in plagiarism and how often they confronted students.

The results were extremely beneficial. There was recognition of the need to clarify for teachers and students the school’s position on the ethical use of information and to provide intentional instruction and
interventions for students at an early grade level. Teachers were anxious to work with the school librarians to collaboratively address plagiarism issues (Ballard, March, and Sand 2009).

Action research raised the profile of school librarians as teachers and leaders who could influence our fellow educators and create demand for our programs. AR yielded data about teaching and learning that increased our productivity, made us more responsive to problems, and more flexible about solutions. Most importantly, we were able to adapt and improve instruction through an evidence-based model. Patricia Wood (1988) noted that AR validates what surprised us—make predictions about future possibilities. Findings always lead to an “a-ha!” realization that our practice must change. AR leads to further research because AR is recursive. It offers opportunities to share with stakeholders and our community at large through face-to-face and virtual venues.

From my perspective AR helps me recognize and value evidence-based practice that is connected to theory and research so I can develop those dispositions that Bush and Jones identified. AR and EBP have been indispensable in guiding my learning, though I still have a ways to go. A comment attributed to Michelangelo at the age of 87 sums it up: "Ancora imparo." ("I am still learning.") Action research and evidence-based practice set the course, mapped the journey, and focused my practice through a lens of reflection. I can’t wait to see where the journey takes me next!

Susan D. Ballard
is a school library, media, and technology consultant and educator. She is currently developing a school library preparation program at Granite State College of the University System of New Hampshire. With Judi Repman, she coauthored the article “Project Connect: Articulating a Shared Vision at AASL, Hartford” in the May/June 2014 issue of Library Media Connection and, with Judi Moreillon, coedited Best of KQ: Instructional Partnerships: A Pathway to Leadership (AASL 2013). A member of AASL, Susan is a past president of the organization and is currently serving as the chair of the AASL Policy Review Working Group and a member of AASL’s 65th Celebration Task Force. She is also a member of the ALA Nominating Committee for the 2016 election.

Works Cited:


OPENING KEYNOTE | Thursday, November 5 | 4:00 p.m.–5:00 p.m.
Heidi Hayes Jacobs, Executive Director of the Curriculum Mapping Institute and President of Curriculum Designers, Inc., is an internationally recognized expert in the fields of curriculum and instruction. Jacobs has consulted with a range of organizations nationally and internationally on issues and practices pertaining to curriculum mapping, dynamic instruction, and 21st-century strategic planning. The fundamental backbone of her experience comes from her years as a teacher of high school, middle school, and elementary children in Utah, Massachusetts, and New York. She has been interviewed and featured in many national dailies, magazines, and radio programs, and has published curriculum materials, including webinars and videos featured by the Association for Supervision and Curriculum Development.

FRIDAY GENERAL SESSION | Friday, November 6 | 7:30 a.m.–8:15 a.m.
Administrators Empowering School Library Programs
Join members of the Project Connect panel for a frank and honest discussion of what administrators need and expect from their school library programs and school librarians. Panel members are award-winning superintendents in districts that are maximizing the impact school libraries have on student outcomes. School librarians will walk away with a deeper understanding of what superintendents need, and administrators will leave feeling confident in the role their school librarians can play as drivers of curriculum development, digital transition, and collaborative teaching. A must-attend event that truly addresses the evolution of the school library program as an integral part of any district.
Appearance made possible by Follett.

SATURDAY GENERAL SESSION | Saturday, November 7 | 7:30 a.m.–8:15 a.m.
Brian Selznick is an award-winning author and illustrator of children’s books. After graduation from the Rhode Island School of Art and Design in 1988, Selznick worked for two years at the independent bookstore Eeyore’s Books for Children in New York City. It was here that he wrote and illustrated his first book, The Houdini Box, inspired by a fascination with the famous magician. He has since enjoyed a number of collaborations with authors, including his illustrations for Barbara Kerley’s The Dinosaurs of Waterhouse Hawkins, which won a Caldecott Honor award in 2002. Selznick’s ground-breaking book The Invention of Hugo Cabret was awarded the 2008 Caldecott Medal and was nominated for a National Book Award. It was also the basis for Martin Scorsese’s Oscar-winning film Hugo.
Appearance made possible by Scholastic.

CLOSING KEYNOTE | Saturday, November 7 | 2:30 p.m.–4:00 p.m.
Eszter Hargittai’s research focuses on the social and policy implications of digital media with a particular interest in how differences in people’s Web-use skills influence what they do online. Her projects have looked at the evolution of search engines and the organization and presentation of online content, and how IT influences the types of cultural products people consume. In addition to her academic articles, her work has been featured on CNNfn, the BBC’s Web site, and several national dailies. Hargittai is a Delaney Family Professor in the Communication Studies Department and Faculty Associate of the Institute for Policy Research at Northwestern University.
TICKETED EVENTS

Expand your conference experience with AASL’s ticketed events, including workshops, tours, and author events. For detailed descriptions, visit national.aasl.org.

Ticketed events are current as of 12/12/14. Additional events have been added to registration. Visit the national conference website for a full listing of ticketed events. A separate registration fee is required and advance registration is recommended. On-site registration will be allowed pending availability.

**Full-Day Workshops**
Wednesday, Nov. 4  |  8:30 a.m.–4:30 p.m.
Think Tank Library—Think Tank Classroom! Weaving Research, Rigor, and New Standards Together Creatively
Paige Jaeger and Mary Ratzer

Half-Day Workshops
**Coteaching Inquiry Learning and Reading Comprehension Strategies: A Perfect Match**
Judi Moreillon

Extending Guided Inquiry into the Interrogation of Sources
Randell Schmidt and Emilia Giordano

Three Must-Have Tools for the School Librarian’s Digital Leadership Toolbox
Lucy Santos Green and Stephanie A. Jones

**Educational Tours**

**Clue 1: This Columbus Native Won a Tony Award**
Wednesday, Nov. 4  |  8:30 a.m.–4:30 p.m.

Whistle While You Read
Wednesday, Nov. 4  |  12:30 p.m.–5:00 p.m.

Buckeyes and Books
Thursday, November 5  |  8:30 a.m.–12:00 p.m.

Shop ’Til You Drop
Sunday, November 8  |  11:30 a.m.–6:30 p.m.

**School Tours**

This Library Is Wild! (MS Tour)
Wednesday, November 4
8:30 a.m.–12:00 p.m.

Many Languages, One Philosophy (HS Tour)
Wednesday, November 4
1:00 p.m.–4:30 p.m.

Private Schools of Distinction: Boys Versus Girls (ISS Tour)
Thursday, November 5
8:30 a.m.–12:00 p.m.

Two Programs, One Library (ES Tour)
Thursday, November 5
8:30 a.m.–12:00 p.m.

**Author Banquet**
Friday, November 6  |  6:00 p.m.–9:00 p.m.

Matt de la Peña  |  Author of A Nation’s Hope: The Story of Boxing Legend Joe Louis. Appearance made possible by Penguin Young Readers Group.

Sonia Manzano  |  Starring as “Maria” on Sesame Street, and author of No Dogs Allowed! and A Box Full of Kittens. Appearance made possible by Scholastic.


**Author Breakfast**
Sunday, November 8  |  9:00 a.m.–11:00 a.m.

Josephine Angelini  |  Author of the Starcrossed trilogy and the Worldwalker trilogy. Appearance made possible by Feiwel and Friends, an imprint of Macmillan Children’s Publishing Group.


Kate Messner  |  Author of The Brilliant Fall of Gianna Z, All the Answers, Wake Up Missing, and Eye of the Storm. Appearance made possible by Bloomsbury Children’s Books.

REGISTRATION & TRAVEL

Registration
Save money! Join AASL as a personal member and register at the member rate. Early-bird individual AASL members receive $100 off the regular rates. Use the AASL membership form on the next page.

Early Bird: by August 13
Advance: by October 8
Late/Onsite: after October 8

THREE WAYS TO REGISTER
ONLINE: national.aasl.org
VIA FAX: (708) 344-4444
BY MAIL: AASL National Conference Registration
c/o CompuSystems | P.O. Box 6271 | Broadview, IL 60155

The form is designed for one registrant or one registrant plus administrator. Please photocopy for additional registrants. Group discounts are available for five or more AASL individual members from the same district. Registrants must submit all forms together to qualify for the group rate. This group discount offer is not available online. The cost is per person.

CANCELLATION POLICY: Written cancellation of conference, preconference, tour, and meal event registrations must be received by October 8, 2015. For complete details on AASL’s cancellation policy, visit the conference website at national.aasl.org/faq.

Hotel
Through our official housing partner, onPeak, we provide reduced hotel rates and travel discounts for your trip to Columbus, OH. You are required to register for the conference prior to booking your hotel reservation. It is recommended you use the online reservation form to expedite your hotel room request. New reservations and changes (based on availability) as well as cancellations will be accepted by onPeak until October 8, 2015. For detailed information on policies regarding hotel reservation procedures, guarantees, room sharing, cancellations, and changes, visit the conference website at national.aasl.org/housing.

HOTEL RATES
Rates listed do not include taxes or service charges. AASL rates are available from Monday, November 2, through Sunday, November 8, 2015, subject to availability in the group block.

1  Courtyard by Marriott Columbus Downtown: $150 single/double
2  Crown Plaza Columbus Downtown: $173 single/double
3  Drury Inn & Suites Convention Center: $139 single/double
4  Hampton Inn & Suites Columbus-Downtown: $169 single/double
5  Hilton Columbus Downtown: $185/$195 single/double
6  Hyatt Regency Columbus (HQ): $179 single/double
7  Red Roof Inn Columbus-Downtown: $131 single/double

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School library programs have measured success by improved test scores. But how do next-generation school libraries demonstrate success as they strive to be centers of innovation and creativity? These libraries offer solutions for school leaders who struggle to restructure existing systems built around traditional silos of learning (subjects and departments) and prescribed curricula that aim to cover content. The Common Core State Standards call for a shift from content to process, from memorization to problem-solving. School libraries can lead schools to embrace innovation, think outside the box, engage in interdisciplinary and community collaboration, embrace sudden learning opportunities, and address real-world problems. Innovative organizations “are ones that continually identify and adopt programs and practices, including the requisite organizational structures and cultures that help them better serve students” (Moreno, Luria, and Mojkowski 2013).

In the context of school reform “innovation” means divergent thinking, problem solving, and associated action. Divergent thinking requires a flexible learning environment where risk is encouraged:

- Innovation means first different, then better. That is, innovating is a fundamentally different way of doing things that results in considerably better, and perhaps different, outcomes. Both the ”different” and the ”better” must be significant and substantial. Educators need to think of innovating as those actions that significantly challenge key assumptions about schools and the way they operate. Therefore, to innovate is to question the ”box” in which we operate and to innovate outside of it as well as within. (Washor 2011)

When innovation is evidence-based, it thrives in the trenches where practitioners try, test, and adapt new and different approaches. In such
cases innovation is balanced with evidence-based practice so educators can “plan an innovative project with research and assessment in mind. From the outset of a new service, [they] think about what the intended outcomes are and implement measures to determine success” (Koufogiannakis 2007, 109).

Innovative Teaching and Evidence-Based Practice

Design thinking, a cyclical and iterative process, supports innovation because it relies on evidence to discover meaningful solutions. Pioneered for education by Stanford’s d.school <dschool.stanford.edu> and adapted from the ground-breaking practice of the global consultancy design firm IDEO <www.ideo.com/about>, design thinking is an empathetic, evidence-based approach to problem solving. There are overlaps between design thinking and evidence-based practice models (Howard and Davis 2011). Figure 1 illustrates the design thinking process as it is used for students to solve problems. To develop empathy for the needs of their “clients,” students work in design teams to interview the clients to collect evidence. Students cycle through iterative brainstorming in a process called “ideating” to come up with creative solutions to their clients’ design problems and then return to their original user group to test ideas and get feedback. The teams build prototypes or representations of one or more of their ideas to share with clients and return to their teams to redefine and focus their questions based on the insights gained. The process allows team members to reach solutions that are often radically different than those they would have devised, had they not developed empathy for their clients through this process.

A group of students at Martha’s Vineyard Regional High School (MVRHS) used design thinking to redesign a courtyard adjacent to the school library. Although the courtyard was rarely used, the school community saw its potential as an outdoor learning space. Through design thinking students interviewed their peers and faculty and then built prototypes of the courtyard. In response to feedback the prototypes were modified.

Student-centered, project-based learning (PBL), like the Science, Technology, Engineering, and Math approach (STEM), is largely defined by interdisciplinary approaches to real-world problems. It engages students with the 4 Cs: creativity, collaboration, communication, and critical thinking. One could argue that project-based learning is essential to building a school-wide culture of innovation.

Design thinking, PBL, and other approaches that are learner-centered are pedagogies rooted in constructionist learning theory.
which is an extension of constructivist theory (Piaget and Inhelder 1969). Both approaches posit that learning is active and social. Seymour Papert and Idit Harel wrote:

Constructionism—the N word as opposed to the V word—shares constructivism’s connotation of learning as “building knowledge structures” irrespective of the circumstances of the learning. It then adds the idea that this happens especially felicitously in a context where the learner is consciously engaged in constructing a public entity, whether it’s a sand castle on the beach or a theory of the universe. (1991, 1)

Students gain deeper knowledge by building tangible models as a way of testing their ideas. Educators can also benefit from design thinking to create learning environments that support constructionist teaching. School libraries have proven effective in enhancing the content-driven classroom, but they also have value in creating, supporting, and celebrating learner-centered pedagogies that need flexible spaces. How can design thinking and evidence-based practice guide the redesign of a school library to create a learning environment that supports these innovative pedagogies?

Evidence-Based Library Redesign

At our public high school of seven hundred students on Martha’s Vineyard, Massachusetts, the school council called for updating the library. In September 2013 a Library Improvement Committee was formed, consisting of teachers, administrators, parents, students, and community members. The committee started with a common belief that the school library can and should improve student achievement and that new functions of the library would determine the design of the learning space. Figure 2 illustrates the design thinking processes the committee planned as first steps: collecting evidence from the school community to determine feedback, examining the latest research on school library functions and innovation, and visiting school and town libraries and other institutions that had created makerspaces.

The committee posed two questions in the next phase of their thinking: What are the functions of the school library? How can the design of the school library support these functions? The discussions that followed led to defining a shared vision. Members of the committee used the “Back to the Future” protocol designed by the National School Reform Faculty. The purpose of this protocol is “to vision into the future and tell what it would look like in the very best-case scenario [and] to initiate discussion into the steps, players, actions, and timelines it will take to be successful” (Murphy 2002). The committee imagined where the school library would be in five years and asked, “What do you see people doing in the school library?” Committee members visualized how the library looked in 2013 and how it might look by 2019: friendly, busy, modular, mobile, inspirational, collaborative, innovative, high-tech, engaging, up-to-date, and student-centered.

The committee surveyed students and faculty to determine their perspectives. Seventy-five percent of students said the school library...
was uninspiring, and half said the library hadn’t helped them become better students. They viewed the library as a crowded place that houses books. They envisioned it as a comfortable place where they could meet, play, eat, read, study, and be productive, all at the same time! A survey of faculty revealed their need for separate learning spaces for small groups, individuals, and project work. Clearly, innovation was needed.

Applying the evidence-based practice of reading the research, the committee identified high school libraries in Massachusetts where the innovative Learning Commons concept had been embraced. The members visited Learning Commons in Wellesley, Newton North, and Concord-Carlisle to see how these spaces were designed in response to each school library’s expected learning outcomes. Wellesley High School’s library featured a “touch-table” at the entrance (Gordon 2014). Designed as a senior’s project, it was an innovative space that consisted of a large flat-screen touch display placed horizontally on a table and powered by a hidden computer. Students used the touch-table frequently to play games, create digital artwork, and experiment with new uses of the technology. The touch-table set a tone of inspired engagement as students entered the school library.

Concord-Carlisle’s Learning Commons was spread over three floors connected by ramps. The open space of these interconnected floors was creatively adapted for concurrent use by classes, clubs, small groups, individuals, and faculty.

Innovation was apparent in the Newton North school library’s motto, “Ask, Learn, Create, Share.” A student advisory team helped redefine the library, for example, by building a recording studio in a side room. The old library was dark, and books were hidden in stacks. In an area filled with natural light and comfortable seating, the new Learning Commons has low, wheeled shelves stocked with new fiction books. After the Newton redesign, circulation of fiction doubled in the first year. This kind of evidence indicated to the MVRHS Library Improvement Committee that the design of library spaces can affect learning and that flexible library spaces facilitate innovation.

Finding the Innovation Answers That Inform Library Redesign

It was time to look at the innovation literature. Table 1 summarizes David Thornburg’s (2014) primordial spaces for learning: watering hole, cave, campfire, and life. Thornburg explored how these spaces functioned to meet human needs. The third column in table 1 applies Thornburg’s space concepts to learners’ needs in the school library. (New Zealand-based CORE Education describes “life” as mountaintops for celebration and sharing of learning, and sandpits for prototyping, experimenting, and playing.) Thornburg’s spaces, as they apply to school libraries, accommodate the needs of individual and collaborative learning.

The MVRHS committee used these primordial space concepts as a backdrop for brainstorming library spaces that would meet their
functions. Spaces they identified included:

• Additional small group spaces;
• New classroom space;
• Main room redesigned for flexible, concurrent uses;
• School archives space that could be used as a learning laboratory;
• Work space for project-creation materials and tools;
• Café;
• Furniture that supports reading and stimulates learning;
• Vibrant color;
• Exhibition space for students’ creations;
• Whiteboards for sharing of ideas;
• Digital signage;
• Reading lounge;
• Expanded Innovation Lab;
• Centralized area for access to borrowed devices;
• Community outreach office; and
• Redesigned courtyard as outdoor learning space.

These space elements contributed to a vision of the school library as a hub of project-based learning—a place connected to the community of students and faculty teaching and learning together. We envisioned the library as “a place of shared purpose and universal access where continuous engagement with novel experiences contributed to new knowledge” (Chinosi and McGrath 2014). This vision had implications for new library functions. As committee members gathered feedback, they tested these new functions.

Innovation Lab as a Test Kitchen

In a study similar to the committee’s approach to redesigning a school library, Joan K. Lippincott found, “Libraries provide spaces to support the active, social aspects of learning” (2013). The school library can function as a place for students to become practitioners, to try things out, and even to teach. These activities allow a wide range of authentic assessment possibilities. For example, a student could ask peers to test an app or game he designed, or students could gather their own evidence by surveying or interviewing diverse groups within or outside of the school community.

The MVRHS committee decided to locate the Innovation Lab in a room that was formerly the library office. Students who were invited to lead workshops showed TED talks and used the new library spaces to access collections, work collaboratively, and read independently. Students checked out Chromebooks, relaxed in beanbag chairs, and saw their work not only exhibited but celebrated. Now it was time to consider whether these innovations were better as well as new.

The committee members formulated questions to expand the services offered by the Innovation Lab. Would student-led workshops inspire other students? A student named Sarah brought the answer to us. She came to the school library for help in writing a paper on the history and applications of origami. It was clear she was passionate about the topic—but not about the prospect of writing about it. We asked whether she was interested in...
sharing her knowledge with other students and teachers. She spent the next week preparing to teach while the school librarian publicized the event, and library space filled up quickly. We found that students-as-teachers yielded two benefits. The student assumed authority and became an expert on her topic through research and original design. Students-as-learners in the audience were engaged in a way that did not happen when they listened to an adult. Sarah, who is presently studying engineering in college, told us:

I got to see what it was like to be a teacher since I had always been seeing high school from a student’s perspective. As students we don’t understand why we take certain courses and why they are beneficial to our lives. Now that I actually taught a class I realize that keeping the attention of students and keeping them inspired or curious takes great patience. I also learned different ways to approach a problem when a student gets confused because a teacher is supposed to convey the information from the lecture to the students. When the students left with a smile or a feeling of accomplishment, I felt like I accomplished my job and felt proud.

We concluded that the school library could support and encourage students to exercise autonomy and mastery of their subject. The act of teaching elicited intrinsic motivation. This situation reminded me that autonomy and mastery, along with purpose, form key elements of motivation (Pink 2009). Research in learning explained why. Recent evidence in neuroscience found a statistical correlation between retention (and creation) of knowledge and social rather than analytic learning (Lieberman 2012). When students share their knowledge with peers they are using their “social brain.” Studies show higher academic performance, even on tests, when non-social subjects (e.g., abstract concepts, mathematical formulas) are presented in a social milieu (Lieberman 2012).

The committee addressed another question: Would the Innovation Lab effect positive change in the school? The Innovation Lab was conceived as a place to test ideas that might work on a larger scale across the school. Students and teachers staffed the Innovation Lab in equal numbers. One of our projects involved helping a teacher design a literary character study using Twitter. A student who developed his own prototype of the Oculus Rift, a virtual reality headset, ran a workshop to teach students and staff how to use it. We shared demonstrations by two teachers on successes and struggles in “flipping” their classrooms. We held a discussion/workshop following a screening of a video of James Paul...
Gee talking about how gaming can transform education.

These ideas were not prescribed. Rather, we made an effort to position the Innovation Lab to easily and quickly adapt to emerging opportunities. The school library has already become a “watering hole” filled with conversations about new ideas.

Will Chromebooks increase student productivity? And how would we analyze the evidence we collect to find our answers? We have many more questions to answer.

Implications for the Role of the School Librarian

The Innovation Lab has significant implications for school librarians. Seth Godin has described the librarian as “producer, concierge, connector, teacher and impresario” (2011). The librarian connects the dots between idea and action while bringing together teachers and students, affinity groups in the community, and even the world at large. In the following scenarios the school librarian was the mentor for college and career readiness. Paul wanted to create a short film celebrating high school athletics on Martha’s Vineyard. Bryan wanted to go into business repairing iPhones and iPads. They interviewed other students and soon these “passion projects” came to life. Paul and Bryan continue to pursue these projects beyond high school.

At our school there is a growing culture of inquiry and innovation that includes clearly defined roles for the librarian. The school librarian works with classroom colleagues to incorporate problem-based learning and design thinking in their teaching. The school librarian can encourage innovative practices by delivering professional development on design thinking to students and staff. In our case, the innovation itself, i.e., the Innovation Lab, was the design object as librarian and library committee modeled design thinking to create a learning environment that supported constructionist principles. Evidence-based practice enabled the school librarian to engage in reflective practice, to ask hard questions, and to find the evidence that would inform revision and improvement of the Innovation Lab and its services.
A school that prepares students for the twenty-first century graduates young people who are agile problem-solvers, capable of mapping their own learning. Thomas L. Friedman described how companies such as Google value job applicants who are innovative and not just formally educated (2014). The challenge to our profession is to lead our schools in becoming active learning communities that encourage innovation. If students are engaged in challenging activities that interest them, they can learn anything. If educators are creative and informed they can change teaching and learning in their schools.

Kevin G. McGrath

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He cofounded Primaryresearch.org and the Office of Ingenuity <www.officeofingenuity.org>. A member of AASL, he is on Twitter @MVRHSLibrary and @kgmcgrath.

Works Cited:


PUTTING TOGETHER THE EVIDENCE-BASED PRACTICE PUZZLE

Hannah Byrd Little
hlittle@webbschool.com
Why is it important to prove that school libraries add value to the school program? The National Center for Education Statistics reports that 20 percent of U.S. public schools lack a full- or part-time certified librarian (NCES 2013). In California the ratio of certified school librarians to students is 1: 7,374 (California Department of Education 2014).

Can the school library profession prove that school libraries are indispensable for a 21st-century education even though information is only a few clicks away? How can researchers and practitioners provide strong evidence to support their claims? What are the critical questions? Where is the evidence?

Testing Is Not Enough
School library research has relied on test scores as evidence of the value of school libraries. The research of Keith Curry Lance and others has provided important evidence from impact studies in more than twenty states (Library Research Service 2013). These studies link student achievement to the work of the school librarian (Scholastic Research & Results 2008). This research relies on statistical correlation between standardized test scores and the work of the school librarian. While this evidence is important, it is only one piece in the evidence puzzle.

The often-quoted correlation studies, which found that students in schools with school libraries and certified school librarians have higher test scores than students at schools that do not, were conducted by researchers who controlled for all kinds of variables. However, policy makers are looking for Randomized Controlled Trials (RCT), the gold standard of research, requiring random sampling and clinical trials. However, this type of research, though well suited for laboratories, is very difficult to conduct in school environments.

AASL is working toward the goal of generating rigorous, empirical research data that supports the claim that school libraries are essential for educating today’s youth. Following
A national meeting of research experts and school librarians, AASL wrote a white paper that outlined a plan for conducting empirical research. Recently AASL issued the white paper *Causality: School Libraries and Student Success* (CLASS), which was funded by a grant from the Institute of Museum and Library Services.

The white paper captures the discussion held during the national meeting and proposes a progression of research methods and projects that will support efforts toward theory building, exploratory research, and demonstration research. The paper also outlines mechanisms by which a community of scholars can be cultivated and nurtured toward furthering the research agenda and its activities (AASL 2014). The paper is available on the AASL website <www.ala.org/aasl/research>.

AASL also supports school library research through the work of its Research and Statistics Committee, the publication of peer-reviewed articles in its journal *School Library Research* <www.ala.org/aasl/slr>, and a peer-review research session at its national conferences. These AASL initiatives support research-based solutions for evidence-based advocacy for school libraries.

In addition to AASL initiatives there are alternatives to the correlation with testing data. Bates College challenged the use of SAT scores often used to predict how successful students will be in college. For the last twenty years Bates College has practiced an admissions policy of optional SAT scores. In 2014, in cooperation with the National Association for College Admission Counseling, Bates completed a three-year study that supports the idea that a student’s high school GPA is a better indicator of college success than standardized test scores (Hiss and Franks 2014). This study joins a large body of research that has reached the same conclusion. Test scores are not the only measure of student achievement. School librarians need to look for evidence in teaching and learning practices in their schools so that students can not only get into college but have success once they enroll.

Many school librarians conduct an annual library survey.

However, the evidence needed today is different from much of what has been gathered in the past. For example, the usefulness of print circulation statistics and numbers of visits is diminishing with the emergence of e-books, the Internet, and online databases accessible from anywhere. Now school librarians need evidence of their program’s positive effects on students.

School librarians can gather this strong local evidence of the power of school libraries in teaching and learning in their daily practice. They can and do model the same research methods they want to teach their students. For these reasons, at The Webb School our school library program has worked closely with the senior class advisory team to redesign the required senior paper. The Capstone project requires senior students to conduct primary research and present their projects to the student body. Our seniors must use peer-reviewed research for their background reading. Students collect evidence using surveys, interviews, tests, experiments, case studies, journals, and internships. Students must prove that their proposed theories are viable. The educators at our school want to make certain no senior leaves high school without knowing how to conduct college-level research.

While the Capstone project began as a way to prepare students for college and careers, it is also a vehicle for evidence-based practice. School librarians can create instructional programs that shift the emphasis from testing for right or wrong answers to assessing critical thinking and advanced information skills. As a high school librarian and the lead adviser for my school’s Capstone project I ask my students

**Students as Researchers**

Another important piece of the evidence puzzle is the local evidence school librarians generate in their own practice. For years school librarians have used evidence in daily decisions. For example, they make acquisitions based upon circulation statistics and well-established selection policies.
to “Prove it!” when they formulate their research theories. For example, a student proposed that providing stipends or compensation for college athletes would result in fewer violations of National Collegiate Athletic Association (NCAA) recruiting regulations. Much of the research he found was from major news outlets rather than scholarly journals, so I encouraged the student to conduct primary research by interviewing NCAA officials and coaches through e-mail. Part of the student’s theory became reality a few months after he finished his research presentation. The NCAA voted to allow sixty-five teams to make their own decisions about stipends (Gregory 2014).

Another student found research about how visuals in advertising provoked a neurological response. She conducted an experiment with a sample of students, using product art with textual clues removed. After our school moved to electronic textbooks and a Bring Your Own Device program, a third student researched the overall response to and feasibility of e-texts. He surveyed parents, students, and faculty about this change. He also conducted interviews with people at similar schools about their move to electronic textbooks. This student’s research was presented at a state technology conference for staff of independent schools.

Modeling Research for Students
Since I require such a high level of research from high school students, I want to model how I do research in my practice. In addition to improving and aligning curriculum with information skills, I work on plans and strategies for improving literacy. When I shared with administrators and faculty Kimberly Tyson’s article “25 Ways Schools Can Promote Literacy and Independent Reading,” my colleagues were...
inspired. I implemented two strategies: Encouraging Read-Alouds and Encouraging Students and Teachers to Write Book Reviews (Tyson 2013); and I will work with faculty to conduct class discussions and use informal or formal writing to check for understanding. Once strategies are embedded in practice, written or videoed observations and reflections will be documented to share with administrators and other stakeholders.

Another local initiative, Focus 6, is in its second year at our school. I am one of four administrators who teach specific skills to our incoming sixth-grade students. This year, to improve reading scores, I added reading for purpose through read-alouds in support of the Focus 6 curriculum. I plan to use picture books to teach complex topics such as foreshadowing, setting, theme, and voice. We will use surveys, polls, and social media to collect evidence. Two open-source tools for designing and delivering surveys are the customizable Pew Research Center survey <www.pewinternet.org/quiz/library-typology/create> and Google Forms <drive.google.com>.

At my independent school we conduct local independent studies tailored to assessments. My school uses a test called College and Work Readiness Assessment that measures critical thinking and written communication abilities. I have found both the preparation for the test and the resulting test data to be invaluable in my library practice. Rather than finding correlations between your library program and past test data, focus on finding your school’s areas in need of improvement or gaps in instruction. Develop strategies to improve student understanding and work to fill in the gaps these tests reveal.
“If you’re not part of the solution, you’re part of the problem” (Bass 2013). As 21st-century information professionals we must be part of the solution to Common Core angst, testing gaps, and insufficient focus on 21st-century literacies. The silence of doing nothing signals lack of evidence that school libraries make a difference. This reality became tangible to me last summer when a neighboring school board voted to eliminate three library positions because of budget shortfalls (Justice 2013). If school librarians work toward being part of the solution to 21st-century challenges, we will be viewed as indispensable. The thought of a school without a school librarian will be unthinkable.

Evidence-Based Advocacy

Before school librarians conduct research or collect evidence they face decisions about how they will prove their worth. What is really important in my school library practice, and how does it relate to what is important to the principal? The teachers? The students? The parents? The school board? How does the school library’s mission relate to the school’s mission? Without evidence that addresses these questions attempts to advocate for our school library programs sound void of commitment. For good reasons we may be reticent to market the school librarian or the school library because we do not want to seem self-serving. This is a common concern about advocacy. However, when school librarians engage with evidence and tailor their evidence-gathering to the needs of their schools and districts, they can present strong and convincing arguments.

School librarians deliver the evidence through evidence-based advocacy. The “Unquiet Librarian” provides great examples of evidence-rich reports that are enticing marketing tools (Hamilton 2012). In my practice I meet weekly with administrators and monthly with faculty, and I report quarterly to the board of trustees. These reports are visual, succinct, and impactful. Evidence-based practice is not only a tool of advocacy; it is a tool for leadership, and I believe the best way to lead is by example. Sharing the evidence is an important piece of the evidence puzzle.

Hannah Byrd Little, an AASL member, is the director of the library at The Webb School of Bell Buckle in Tennessee. She served on the Tennessee Association of School Librarians (TASL) Executive Board from 2009–2013 and was the TASL president in 2012. She was awarded the Tennessee Association of School Librarians Innovative Library Media Program Award in 2009. Hannah is available on Facebook at <www.facebook.com/HannahByrdLittleLibrarian> and via Twitter at <http://twitter.com/hannahlittle>.

Works Cited:


WHAT’S A SCHOOL LIBRARIAN’S EVIDENCE IN, OF, AND FOR
Need for Research on Evidence-Based Practice

"I’m sorry. Your position has been eliminated.” Too many certified school librarians have heard these dreaded words, and many more worry about whether their positions will be eliminated. School librarians, professional library literature, and scholarly library literature tout the benefits of schools staffed with certified school librarians. However, recent reductions in library funding and elimination of school library positions suggest stakeholders do not connect the school library program to positive student learning outcomes.

In an era of teacher accountability school librarians are expected to prove their value by demonstrating how they contribute to student learning. Evidence-based practice (EBP) offers school librarians a cyclical and systematic process (Oakleaf 2011) for collecting meaningful data that documents student learning.

School librarians who demonstrate EBP employ existing research to inform their programming. They rely on their expertise gained from in- and out-of-school experiences, including knowledge of their unique school communities. They collect evidence that enables them to share their contributions to student learning and to improve programming and services.

EBP requires school librarians to collect, analyze, and disseminate findings based on rich and meaningful data. Instead of focusing on sources of data traditionally collected, such as circulation statistics and undocumented observations, school librarians can rely on EBP, which merges theory and practice (Eldredge 2000). School librarians are empowered to develop, implement, and assess their programs through standards, guidelines, and best practices research as well as empirical data specific to their school populations. Library programs are tailored to meet the unique needs of the school community and demonstrate the connections between the programs and student learning outcomes (Todd 2007).

When employing evidence in practice, school librarians rely on their experience and professional expertise. For example, school librarians are familiar with their stakeholders’ needs and develop mission statements, goals, and long-range plans to meet these needs.

Traditional annual reports providing circulation, collection age, and visitor logs are insufficient for proving a school librarian’s contribution to student learning. Useful library-related assessment data demonstrates clear connections between the school library program and student learning outcomes.

Dimensions of Evidence-Based Practice


When employing evidence for practice school librarians use external and internal evidence as a foundation for building school library programs. External evidence includes research published in scholarly journals, such as School Library Research and School Libraries Worldwide; national and state standards or guidelines, such as AASL’s Standards for the 21st-Century Learner (2007); and professional literature focusing on best practices, such as Knowledge Quest, Library Media Connection, School Library Journal, and School Library Monthly. Internal evidence includes data specific to the school library program, including surveys, information about stakeholders, library-

specific data (e.g., circulation statistics, visitor logs), and school- and/or classroom-level data (e.g., standardized test scores and benchmark test results).

When employing evidence of practice, school librarians evaluate the school library program in terms of student learning outcomes, using multiple forms of data, and disseminate that data to stakeholders through multiple channels of communication. Traditional annual reports providing circulation, collection age, and visitor logs are insufficient for proving a school librarian’s contribution to student learning. Useful library-related assessment data demonstrates clear connections between the school library program and student learning outcomes.

Our Research: Why and How We Did It

Though a number of resources support school librarians’ understanding of EBP and provide tools for librarians to design learning assessments, little research has explored the extent to which school librarians use EBP. Also, no studies have investigated the consequences of applying EBP to student learning in the context of school librarian retention. In 2013 we designed a study to answer the following questions:

• To what extent do school librarians apply components of EBP?
• To what extent, and with whom, do school librarians share EBP data?
• To what extent has formal LIS education supported school librarians’ applications of EBP?

We conducted a web-based survey in which 111 randomly selected certified public school librarians in Texas voluntarily and anonymously responded to 26 yes/no, multiple-choice, multiple-selection, and open-ended questions focused on EBP implementation (Richey and Cahill 2014).

What We Learned

In terms of evidence for, in, and of practice, respondents indicated they were most likely to engage in evidence for practice. Reading professional school library journals was the preferred means of acquiring external evidence, with 83.8 percent of respondents reporting reading these journals. Only one-third reported reading scholarly journals. Respondents indicated that when developing library program goals and/or objectives they were more likely to refer to state-level guidelines found in School Library Programs: Standards and Guidelines for Texas (Texas State Board of Ed., and Texas State Library and Archives Commis- sion 2005) than the national-level counterpart, AASL’s Standards for the 21st-Century Learner (2007). When using internal evidence, respondents indicated they were much more likely to informally solicit information from patron groups or to collect library-specific data such as circulation statistics than to formally survey stakeholders or to collect and analyze school- and/or classroom-level data such as standardized test scores, benchmark results, and disciplinary referral logs.

Evidence in practice behaviors varied considerably. The majority of respondents had library program mission statements in place, but slightly more than half had developed formal goals for their practice. Interestingly, only 15 percent of school librarians had developed long-range plans; however, most of the respondents reported that they were working toward meeting program goals.

Respondents also varied widely in their application of evidence of practice. School librarians overwhelmingly reported sharing data. More than three-quarters of respondents said they shared their library goals with administration and nearly as many shared their library goals with teachers. Furthermore, a majority reported sharing with administrators additional library-related data, such as circulation statistics, visitor logs, formal evaluations, LIS literature, and anecdotal evidence, and more than one-third reported sharing with teachers those types of evidence.

School librarians’ reasons for sharing information with stakeholders fell into three categories. The primary purpose for sharing information was to bolster the likelihood of gaining, increasing, or securing something. For example, one school librarian indicated sharing information to “show usage [and] validate need for funding and [the library’s] position.” Another reported, “I hope to achieve value for the library program and the realization that the library program plays a role in student achievement.”

A second category of responses related to sharing information for the purpose of keeping stakeholders informed about the library program and its contributions to the school community and/or student learning. These responses are illustrative of those in this category: “To show our staff that their needs are important and that we are here to serve our patrons. Also, to show that we realize that needs are constantly changing,” and, “[So] my principal gets an idea [of the] many ways I strive to reach every student with a diversity of activities…”

Finally, school librarians shared information with stakeholders to solicit feedback that would facilitate planning. A respondent described the type of input she solicited from stakeholders: “input from [stakeholders] as to the direction we need to take the library program.”

A number of respondents shared incidents in which sharing of evidence was met with positive results: that is, they gained, increased, or secured something, typically funding or access to library programming for students and teachers. Disappointingly, few respondents indicated the data shared was related to student learning outcomes. Instead, most focused on basic library-related data such as circulation statistics.

About half of the school librarians stated they received some type of exposure to the concept of EBP during their formal LIS coursework. Slightly more than half articulated sufficient understanding of EBP for application into practice.

What Does Our Research Mean to School Librarians?

What significance do the findings of the study have for school librarians?
How can school librarians apply the systematic EBP cycle to their everyday practice?

EBP is imperative for school librarians to implement because it:

• Offers a practical avenue to improve school library programming and services;
• Adds tools to facilitate structured growth of the program;
• Generates evidence that the school library program and school librarian contribute to student learning; and
• Positions the school librarian and the school library program as essential to the academic development of students.

Figure 1 illustrates the cyclical steps for applying EBP to school library practice: determining needs; developing goals; planning; implementing the plan; communicating; reflecting; and repeating the process after modifications have been made if/when needed.

Determine needs: School librarians determine the needs of students and teachers by examining evidence such as standards documents and through informal means. However, to gain full understanding of these needs school librarians gather and analyze school- and district-level data related to student learning outcomes. Rather than relying on informal ways of knowing, school librarians benefit from designing formal surveys to determine specific needs of students, teachers, and other members of their unique communities. A realistic approach is to consider school goals and focus on one or two and then identify data that points to the need. For example, if the school goal is to improve students’ writing, the school librarian collects and analyzes test items that assess writing and then discusses with teachers the needs for support. After reviewing AASL standards and state standards, the school librarian develops a library goal based on the school’s goals.

Plan: Planning involves merging research and standards/guidelines with local data that informs practice. Using these sources, the school librarian formulates a preliminary plan for attaining library goals, meets with the library advisory board members to solicit feedback and formalize the goals, and shares the goals with stakeholders. The school librarian then invites partners to collaborate on attaining the goals, considers the evidence that will be collected to measure effectiveness, and schedules routine procedures and days/time to collect and analyze data. In the example related to improved student writing, the librarian partners with one or multiple grade-level or content-area teachers to plan specific lessons, units, and/or activities that develop students’ writing skills. These collaborators determine multiple evidence sources that drive instruction and measure students’ learning. Finally, they schedule instruction and/or activities and times to analyze evidence. To ensure data analysis actually occurs, it is important at the outset to schedule this vital step of the instruction process.

Implement Plan: The school librarian is ready to implement the plan.

Just as the lessons, units, and activities are imperative for accomplishing goals, evidence collection and analysis are essential for measuring attainment of goals. Hence, collection of evidence for each lesson, task, and activity is crucial. Evidence focuses on assessment and appropriateness of goals. In the writing example frequency of visits indicates whether targeted students and teachers use the library, but such evidence does not assess how well the school librarian addresses students’ writing needs. Types of evidence that might point to student learning, as well as whether or not the goal was met, include applied rubrics, surveys (formal and informal), exit slips, benchmark tests, and assessment measures demonstrating student mastery of skills taught in the school library. Traditional library statistics (e.g., circulation statistics, frequency of visits, and frequency of lessons) and anecdotal evidence, while useful for creating a full picture, are paired with more meaningful evidence.
Evidence librarians have traditionally collected does not connect the school library program with student learning outcomes. After analyzing the evidence, school librarians draw conclusions and tailor subsequent activities and lessons to address unmet needs and to further enhance areas of strength.

Communicate: Though it is sometimes difficult for school librarians to toot their own horns, it is vital to communicate success as well as areas of instruction, programming, and service needing improvement. When library goals target student learning and school improvement, attainment of those goals appears less library-centric. Messages of success are more palatable when framed as “we” or “they” rather than “I” or “the school library program.” School librarians communicate with multiple stakeholder groups (administration, teachers, students, parents) and the greater community, as appropriate, through various media such as videos, library websites and blogs, local news, announcements over the school’s public address system, flyers, stickers, t-shirts, photos, and social media.

Reflect: Reflection throughout the process is important. The school librarian reflects during each step and activity to consider important questions. What happened? How does it impact effective learning? What do the data tell us? What worked and what didn’t? What do stakeholders say about what does or does not work? What are the benefits of what we just did? Where are areas for improvement? How could the library program build on the evidence and reflection? What could the library program focus on next?

Repeat: Finally, the school librarian repeats the process. Naturally, the new plan will be modified and tailored based on previous activities, conclusions drawn from the evidence, and new needs.

Conclusion

School librarians’ favorite preposition is for, as in evidence for practice. While building a school library program based on standards, guidelines, and research is essential, our findings indicate that collecting meaningful evidence connecting the school library program to student learning outcomes rarely occurs. With meaningful data that is critical for decision-making, stakeholders, school librarians can secure their positions in times of budget and staffing reductions. EBP provides school librarians with clear steps for planning, implementing, collecting, analyzing, communicating, and reflecting on their programs. In doing so, school library programs can better meet the needs of students.

**Works Cited:**


Learning in the library at Greenhills School (in Ann Arbor, Michigan) can get noisy. Students in grades 6–12 have come to the school library to fabricate a Klein bottle with the 3-D printer, run the sewing machine to embellish a hoodie with LEDs, and borrow EL (electroluminescent) wire for a photography shoot. Now students can also check out Raspberry Pi kits to create a number of inventive projects in the classrooms or at home.

What Is a Raspberry Pi?

Although it sounds like a delicious dessert, since 2012 over three million of these tiny computers about the size of a playing card have been sold to educators and tinkerers around the world. These circuit boards are available with multiple configurations. The differences are roughly in the number of USB ports and the amount of memory available on each of the boards. On its own, the Raspberry Pi won’t do much out of the box. Users will need to install an operating system (usually Raspbian or Linux), which can be downloaded to an SD card from a number of websites, and set up the small computer with a power source and peripherals.

Once the operating system is loaded, and keyboard and monitor are attached, it’s time to select a programming language. Many school librarians and students are familiar with Scratch, a graphic programming language supported by an active online programming community, and Python, another easy-to-learn, object-oriented programming language that has loads of online support. Both languages have a growing library of projects written for the Pi, so new users need to know just enough coding basics to modify projects or commands for their own use.

The simplicity and adaptability of the Pi allow students to construct and instruct a piece of hardware to do just about anything, from playing video games to taking pictures from near space.

What Have We Done in the Greenhills Library?

As a school librarian, I’m always on the lookout for ideas to integrate useful technologies and for new ways to broaden student interest in the subjects they are studying. Middle school students and teachers at our independent school are busy trying to cover a ton of content in their classes, so often I need to offer a club or a workshop for anything I want to introduce that is not traditionally taught. Sometimes these workshops are so successful that teachers will work with me to find a way to incorporate these ideas.
or technologies into their classes. That’s what happened after a lively Raspberry Pi workshop.

I asked a couple of the students in the high school computer science class if they wanted to help put together an after-school workshop to build a motion detector that would trigger an e-mail when the door to the student’s room was opened. We snagged some items from the science department and ordered a few things from Adafruit (<www.adafruit.com>). Here’s what we used for each pair of students (see figure 1):

• RASPBERRY-MODB-512M
• 4GB SD card
• Two-foot Ethernet cable
• 1A external plug-in Micro-USB
• Breakout kit for PI (see <http://adafruit.com/products/914>)
• Breadboarding wire
• Three 10mm diffused LEDs in different colors
• One pushbutton
• One PIR motion sensor with tails.

We didn’t have any HDMI monitors available so we found an article that showed how to use a laptop as the display and keyboard for the Pi.1

I worried that we had too much material to cover in two hours. After all, asking kids to install an operating system on a computer, learn a new programming language (Python), and combine it with some previous knowledge of electronics might be too complicated. Boy, was I wrong! A student quickly pointed out that our plan was flawed because the number of people in the lab would set off the motion detectors.

Students quickly put their (and my own) reasoning and research skills to the test in coming up with a new project. We decided we would use the LED lights to indicate temperature ranges by pulling the information from airport websites.

Students showed each other how to turn their queries into code and began posing all sorts of questions that I had never dreamed of asking. Before long, our lights were blinking and reporting temperatures from around the world (see figure 2).

Pi enthusiasm has caught the attention of the eighth-grade teaching team. Each year students in grade 8 showcase science work as well as writing skills from an English memoir project. What if we combined the projects into an integrated unit and created our version of a digital book—one that could light up? The science teachers decided to offer the option to use either the Raspberry Pi or an Arduino board (available at <www.arduino.cc>) to illuminate the homemade books. Students have jumped at the chance to extend their knowledge of circuits by working with the boards. In addition, we have decided to add an innovation rotation to the seventh-grade curriculum; this change allows students to select the option of using the library’s Pi units to design a project.

What’s next? This year, members of the middle school book club decided that they wanted to use a Raspberry Pi to build a Minecraft program based on a story they are writing. Maybe we will tackle building a machine to run the circulation system. To my great delight, it appears that the energy level in the school library will continue to be turned up as we support students’ STEAM learning as they have fun.

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Our program encourages the collaboration of diverse groups of students and staff.

How One Book Caught Fire

SENECA HIGH SCHOOL’S “ONE BOOK, ONE SCHOOL” PROGRAM

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Seneca High School’s “One Book, One School” (OBOS) program is our pride and joy. It is a yearlong program built around a summer reading selection and involves the entire school community. The program simultaneously builds a strong school culture and infuses in students and staff a love of reading.

In the last four years our entire school community has read: *The Hunger Games* by Suzanne Collins (2011), *The Fault in Our Stars* by John Green (2012), *Divergent* by Veronica Roth (2013), and *Boy 21* by Matthew Quick (2014). We can see the fruits of our success as students check more books out of the school library. Summer reading books fly off the bookshelves, and our students’ standardized test scores improve on a regular basis.

Each year Kathy Donoghue, school librarian, and Beth Anne Strittmatter, English coordinator, spearhead a committee made up of teachers and students from different facets of the school community; the committee’s mission is to select a summer reading book and brainstorm school-wide activities that are connected to the novel’s themes. This collaborative process is the spark of the program. The passionate members of our school community take ownership over the OBOS events and trigger a buzz throughout the entire school.

In 2011 our committee mirrored *The Hunger Games* storyline by dividing our school into twelve “districts” comprised of homerooms from each grade. Each district was assigned a teacher.

Throughout the school year districts completed challenges and earned points by participating in events such as a toy drive, a canned-food drive, and a reading quiz. Two pep rallies allowed students to synthesize their knowledge of the book through physical and intellectual challenges. The first rally mimicked the book as two students (“tributes”) from each district were selected to compete. Ultimately, one tribute remained. For the second rally, each district came up with an original skit based on the book. Winners were determined by a set of judges, and student votes were calculated using a cell phone text system. At the end of the competitions, the three districts with the most points won a trip to see the film version of *The Hunger Games*.

In 2012 we developed activities surrounding *The Fault in Our Stars*. Our first event was a “Relay for Life” in which more than seven hundred students and eighty staff members spent twelve hours walking to raise $26,000 for the American Cancer Society. We also held a hair-cutting ceremony; more than forty-five girls and female teachers each donated eight inches of hair to Pantene’s...
“Beautiful Lengths” program to provide wigs for cancer patients. Sixteen boys and male teachers shaved their heads, raising even more money.

In 2013 students read *Divergent* by Veronica Roth. To celebrate the book, we held a six-hour dance-a-thon to raise money for United Way. Students formed teams, with one person from the team dancing at all times. Students could become “divergent” by participating in activity stations mimicking each of the factions in the book (selfless, brave, intelligent, peaceful, or honest). To become peaceful, students had to write a letter to a soldier overseas. To become brave, students had to sing karaoke in front of the entire student body. Other activities included making baby blankets and hats for the children’s hospital (selfless), completing puzzles and mind tests (intelligent), and playing truth or dare (honest). By becoming divergent a student earned a ticket to see the movie.

This year our choice is *Boy 21* by Matthew Quick. Our activities will include a free-throw tournament (the book is about two basketball players), star tour, and outdoor movie event (to celebrate the theme of astrology in the book). We will also have a pep rally. The registration fee for this event will be donated to a local mental health charity.

Our OBOS program has gained popularity and success each year because we have identified several factors that have positively influenced its development. First, instead of asking our students to read in isolation, this program is designed to create a shared reading experience. We have generated memorable experiences for participants. We have connected an entire school to one book; this focus has, in turn, fostered a strong sense of community.

Our program encourages the collaboration of diverse groups of students and staff. Everyone is expected to share in the responsibility and achievement of common goals using critical-thinking skills, decision-making skills, and problem-solving skills. We are fortunate to have many teachers and support staff who are quick to get on board with all of our student-driven projects.

Over the course of this program we have seen a rise in the number of students that actively participate. During the first year trial of the OBOS program in 2009, we offered an evening field trip to the Philadelphia Free Public Library to hear author Sherman Alexie discuss his work (*The Absolutely True Diary of a Part-Time Indian*). Approximately thirty students volunteered to attend. In subsequent years, participation in our school-wide events increased at a strong and steady rate. In 2012 we had more than seven hundred students sign up to participate in our all-night walkathon.

Each year we have seen a rise in the number of books purchased for the summer reading program. We believe that the popularity of our program is now driving sales to increase; students want to be in on the One Book experience. Our library circulation numbers have also increased, as students ask us, “What book can you recommend that’s like *Boy 21*?” Music to a school librarian’s ears!

Finally, for the past two years our standardized High School Proficiency Assessment reading and writing scores have improved. The original mission of the OBOS program was to create a shared reading experience, but we have found that our students have enhanced their literacy skills. With our framework in place, we hope to continue to show that this program will sustain our students as we move through the twenty-first century.

The OBOS program exposes students to skills needed to become successful in our changing world. It enables students to understand that learning has a social context, and our students are developing the skills to share knowledge and learn with others.

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Kathy Donoghue is a school librarian at Seneca High School in Tabernacle, New Jersey. The Seneca High School library was awarded the New Jersey Outstanding Library Award from NJASL in 2011. Kathy has been a member of NJASL for fifteen years.
...kids inevitably ask about the best part of my job. I tell them that while going to work barefoot is a great perk, my favorite thing is the learning—the gift of being able to explore anything that fascinates me, every single day.

Confession: I am a card-carrying research geek. It was apparent way back in elementary school, when I’d spend the summer months assigning myself research projects so that I could spend more time at the public library in my small western New York town.

“You need to write a five-page report about gorillas,” I’d tell myself and then giddily pull primate books from the shelves until they were stacked to a dangerous, teetering height.

Even when I went to the library looking for my favorite works of fiction—Beverly Cleary’s Ramona books and almost anything by Judy Blume—I’d always leave with something else, something unexpected, a book I hadn’t intended to check out. One day, it might be a collection of poetry. Another day, it would be a book about volcanoes or skydiving or snakes. It was out of this wild variety reading that my first book was born.

I’d just finished reading a pile of shark books and decided I’d write one of my own. I compiled a whole bunch of facts, made a construction paper cover for the collection, and called it *Shark: Terror of the Sea*. My mother “published” it with a magnet on our refrigerator, and, for the rest of that year, whenever my folks were hosting a dinner party, I’d wait for the doorbell to ring. I’d race to answer it and take each unsuspecting guest by the hand. “Hi there! Can I take your coat? Great! Now come to the refrigerator and read my book.”

In my adult life I’ve been fortunate enough to have three careers that have fed that enthusiasm and love of learning—first as a TV news reporter, then as a middle school English teacher, and now as a writer of books for kids. When I do school visits as an author and we get to the question and answer period, kids inevitably ask about the best part of my job. I tell them that while going to work barefoot is a great perk, my favorite thing is the learning—the gift of being able to explore anything that fascinates me, every single day.

I went snowshoeing in the Adirondack Mountains and learned about the secret world of animals living under the snow—a field trip that led to my picture book *Over and Under the Snow*. I traveled to Oklahoma’s storm country to learn about tornadoes for my futuristic weather novel, *Eye of the Storm*, and kayaked among the alligators in the Everglades to capture a stronger
sense of place for my science thriller *Wake Up Missing*. The kid-sleuths in my Silver Jaguar Society Mysteries (*Capture the Flag*, *Hide and Seek*, and *Manhunt*) have gone on secret missions that took them to Washington, DC, the Costa Rica rainforest, the historic sites of Boston, and the deep dark tunnels below the streets of Paris. In researching those books, I had incredible opportunities to explore those places and probe their mysteries, too.

But my favorite research journeys have grown from the new chapter book series I’m writing for Scholastic about a time-traveling search and rescue dog named Ranger. Ranger, a golden retriever who’s full of energy and heart, has been through all the training to be a search and rescue dog, but there’s just one problem—he can’t resist chasing squirrels and doesn’t pass his test. But then in his family’s garden Ranger digs up a mysterious first-aid kit—one that transports him to other places and times, where his help is very much needed.

In the first book, *Ranger in Time: Rescue on the Oregon Trail*, Ranger travels with a pioneer family making the long, dangerous journey west to the Oregon Territory. Researching this book brought me to an incredible library—a small, cozy room in the back of a museum in Independence, Missouri, dedicated entirely to Oregon Trail resources. I’d been searching for some trail diaries left behind by young people but wasn’t coming up with much before I called this library. When I explained what I was looking for, the man in charge said, “Oh…well, we don’t have much. Except for Lizzy,” he added as an afterthought.

“Lizzy?”
“Lizzy Charlton. She was a teenager on the Oregon Trail, but her diary’s just awful.”

“Awful how?” I asked.

He explained that Lizzy hadn’t written much, and what she did write was short, curt, and ill-tempered. “She hated it. She was cold and bored,” he said. “She didn’t want to come.”

Lizzy’s “awful” diary turned out to be a rare gift—the voice of an actual teenager of the time period, with all of her teenaged attitude. Lizzy was whiny. She was surly. And she was real. She ended up being the inspiration for the older sister in my Oregon Trail book—a story I share with readers in the author’s note, along with an excerpt from the real Lizzy’s diary.

From the Oregon Trail, Ranger goes on to a rescue mission in ancient Rome. (“It’s funny,” my husband remarked one day, “how this time traveling search and rescue dog seems to be magically called to all of the places you want to visit.” I had to agree—the coincidences are uncanny.) My time in Rome and Pompeii brought the world of the gladiators to life for me. It is one thing to read about the games and wild animal fights that took place in Rome’s great amphitheater but another to stand and look out over the massive arena.

Likewise, it’s one thing to read slave narratives and quite another to walk through a tobacco field for yourself. I did both when I was researching the third title in this series, Ranger in Time: Long Road to Freedom. While primary sources—real diaries, documents, letters, and membranes—feed the heart of my historical fiction, if I can also try to visit the places my characters inhabit. There is something about standing in a place that brings out the richest details—whether that’s the feel of the Roman sun beating down on stone seats in a grand arena or the damp-smelling air of a cramped basement hiding place in a cobweb-filled barn.

I always hope that those details will bring places to life for my readers as well. When I visit schools to talk about my books and research and revising, I get so excited telling stories that I can never quite manage to stand still. Inevitably, at the end of the Q and A period, some kid raises her hand and says, “It’s fun being an author, isn’t it?”

I tell her the truth. It sure is. It’s the best job I could ever imagine for a kid who longs to explore the world and still loves wandering the library more than almost anything else.

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Kate Messner is the award-winning author of more than twenty current and forthcoming books for young readers. Her debut novel, The Brilliant Fall of Gianna Z., won the E. B. White Read Aloud Award for Older Readers, and her picture book Over and Under the Snow was an E. B. White Finalist as well as a New York Times, ALSC, and NCTE notable book. Kate’s other books for young readers include Capture the Flag, Hide and Seek, Manhunt, Eye of the Storm, Wake Up Missing, All the Answers, Sea Monster’s First Day, and the popular Marty McGuire chapter book series. Her newest project is her Ranger in Time Scholastic chapter book series.