Treasure Mountain Treasury #1

Using Online Resources

Edited by

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CHAPTER 1:

INTRODUCTION: USING ONLINE RESOURCES

JENNY ROBINS

This book presents articles chosen from proceedings of the 2001, 2005, and 2007 Treasure Mountain Conferences. The articles do not constitute a 'best of' selection. Rather they are reprinted as chapters here because they describe or illustrate processes for using online resources to enrich lessons. Some chapters are theoretical and some are anecdotal descriptions of practice. All deal with using online resources to motivate students and to support 21st century learning. Today's students live in a more participatory culture "where they share ideas, comment on one another's projects, and plan, design, and implement, advance, or simply discuss their practices, goals, and ideas together" (Davidson & Goldberg, 2009, p. 12).

The first section of this introductory chapter presents a case for why it is imperative that online resources be used in K12 education. The second section of this chapter describes a process for using online resources to enhance lessons. The final section previews the chapters that follow.

Reasons to Use Online Resources

Social, cultural, and ethical issues create an imperative for teachers, school librarians, and educational technologists to use online resources with their lessons. Five issues are listed here. The first is that lack of access to computers and the Internet impacts the poor disproportionately (Davidson & Goldberg, 2009, 21-22). Jenkins (2006) suggests that the divide between those with and those without access is more than digital, there is also a 'participation gap.' The inequality of access relates not only to computers and online resources, but to the kinds of learning experiences that provide students with the skills and background necessary to be productive members of 21st century society. Information rich learning opportunities invite students to join today's digital, participatory culture. Students can use online resources to explore their world and to work with others to solve problems that are local, national, and international in scale. In this way students develop dispositions related to inquiry, problem-solving, self-regulation, self-direction, and collaborative work. Where in the past learning activities have been preparatory, learning today can take place in authentic situations, where students' actions achieve relevance in the community.

A second challenge that makes it imperative for educators to use online resources arises because of the speed with which the affordances for interaction on the Internet evolve (Jenkins, 2006, p. 26). These digital affordances advance faster than socialization processes. Thus, the ethics for using online tools for sharing knowledge are still emerging.

For example, technology affords public participation with Web 2.0 communities like Facebook, but ethical norms for participation are still in formation and there is little training to prepare students. Ethical questions for students include such things as how much personal information to reveal, which content is likely to invite unwanted attention, and how does one disengage from these communities? Rather than learning from the older generation, much of what students learn about these types of ethical questions comes from their peers. School librarians and education technologists face the professional challenge of monitoring the interaction and the changing social norms in online communities and sharing their wisdom and experience in teaching opportunities as they arise with students, teachers, and administrators.

Jenkins (2006, p. 14) suggests that developing media literacy is a third issue to address. This is another reason for integrating online resources into lesson activities. Influences from the media are so pervasive in our culture that they are difficult for young people to detect. Cookson (2009, p. 11) notes:

> Every day we are exposed to huge amounts of information, disinformation, and just plain nonsense. The ability to distinguish fact from factoid, reality from fiction, and truth from lies is not a "nice to have" but a "must have" in a world flooded with so much propaganda and spin.

Using online resources, students are trained to spot influences and to choose how they will react to them. This requires students to develop and nurture critical thinking so that they know how to question the credibility of the information they find in textbooks, print media, and on the Internet. Share, Jolls, and Toman (2005) suggest five questions for media literate students to ask:

1. Who created the message?
2. What creative techniques are used to attract my attention?
3. How may different people understand this message differently than me?
4. What lifestyles, values, and points of view are represented in – or omitted from – this message?
5. Why is this message being sent? (p. 7)

These questions probe the motives of information creators. This goes beyond the information literacy skills that students use to search for online resources that are from reputable sources. A combination of media literacy and information literacy is required in order to spot bias, possible omissions, and misleading information. Also as students participate as creators of knowledge, the questions above provide an opportunity to reflect on their own motives and bias, helping them build their own ethical values as knowledge creators. Through participatory learning students are encouraged to develop a habit of applying the five questions to their own products and to resources created by their peers. "One important goal of media education should be to encourage young people to become more reflective about the ethical choices they make as participants and communicators and

the impact they have on others" (Jenkins, 2006, p. 17). In the chapters that follow there are examples of lessons where students developed critical thinking and, in group activities, learn to draw on each others' experiences and knowledge, to construct arguments, present evidence, and create knowledge in an authentic way.

A fourth reason to use online resources is because today's students have widely varied amounts and kinds of background knowledge. According to Lemke and Coughlin (2009, 54 – 55):

> Tapping into a student's prior knowledge is a highly effective teaching strategy. But the easy access to online information means that the kinds of prior knowledge students bring to the classroom vary now more than ever before. A high school teacher introducing Newton's laws of motion may have some students who know nothing about this topic, others who have explored the physics of skateboarding online, and even one or two who have taken an introductory online physics course from MIT. As students increasingly access such resources, educators need to assess students' prior knowledge and design instruction that provides more individualized learning paths and builds students' self-directed learning skills.

If a teacher provides access to learning activities that employ a variety of resources, it is possible to provide opportunities for peer-to-peer learning, to individualize lessons to advance the knowledge of each student, and to provide space for the self-directed student to reach his or her learning potential. In addition, the knowledge of both teachers and students can be pooled in the classroom. Teachers are members of the learning community, not the knowledge experts. Students attain an equality as learners that allows them to view themselves as valued, contributing members of the learning community.

A fifth issue that makes it imperative for students to use online resources while they are in school is so they can develop an understanding of how knowledge is created and distributed. An "emerging shift to new types and ways of 'knowing' is apparent and has important implications for learning and education" (Dede, 2008, p. 81). In the past, knowledge was the product of experts and authorities. Today it is often produced by 'collective agreement' (p. 80) and legitimated by the 'wisdom of crowds' (Davidson & Goldberg, 2009, p. 13). This creates notable problems. Consider the incident where Shane Fitzgerald, an Irish college student wrote a fake quotation in a musician's obituary and posted it on Wikipedia (Carbery, 2009). Fitzgerald placed the quote as part of class activity to explore how quickly information moves around the globe (Pogatchnik, 2009). What makes Fitzgerald's Wikipedia post noteworthy is that the quote was picked up by the print media and appeared in major newspapers in Great Britain, India, and Australia. The bogus quotation went unnoticed for weeks, until Fitzgerald contacted the papers by email and explained that he was the source of the quotation, not the musician. Wikipedia removed the quote within hours, while the print and online bloggers and journalists continued to propagate it (Pogatchnik, 2009). Some newspapers issued a retraction, others did not. Even if a newspaper issued a retraction and changed its own digital archive, copies of the article stored in library databases are not adjusted to reflect the retraction. Today a search of Lexis Nexis' Academic, a newspaper index, will retrieve the obituary with the quotation

intact in The Guardian, a British newspaper. Lexis Nexis notes in the index record for the article that there is a retraction but gives no indication of the nature of the correction.

In the emerging realm of information ethics, Fitzgerald did not suffer any negative consequences from his professor as a result of his social experiment. Fitzgerald's own ethical standards prompted him to contact the editors of newspapers that used his bogus Wikipedia entry after he realized it might go down in history as a true quote from the musician. He was treated like a vandal at some of the newspapers that received his email confession (Pogatchnik, 2009). Jay Walsh, Wikipedia spokesman noted that the network of volunteer editors will be "rightly perturbed' by the bogus listing (as cited in Pogatchnik, 2009, para. 12). However, journalists for print newspapers will likely continue to use Wikipedia. Butterworth, an editor at the Guardian, advises, "The moral of this story is not that journalists should avoid Wikipedia, but that they shouldn't use information they find there if it can't be traced back to a reliable primary source" (as cited in Pogatchnik, 2009, para. 14). However, in the strange world of emerging ethics, the most accurate information is in the source that afforded the error in the first place, Wikipedia. This illustrates how lessons about knowledge creation are complicated by emerging practices. The authority of newspapers and magazines has been challenged in the past, but students have not been invited into the discussion before. While authorities might revile an information landscape where contributions of students are given equal prominence with their own, knowledge is accumulating and advancing through participatory practices. In this new mode of knowledge creation, expertise involves "understanding disputes in detail and proposing syntheses that are widely accepted by the community" (Dede, 2008, p. 80). Work is needed to sift through contributions. This might involve the very experts who were once the sole authorities. They will be aided if students are taught to anticipate the consequences of their Internet activities and to participate intentionally in the creation of knowledge. As with Fitzgerald's post, consequences can arise instantly and spread contagiously.

The participatory culture presents opportunities to make contributions in the world beyond the classroom, but this calls for an awareness of the responsibilities that accompany these activities. In a world where technological advances are proliferating, the chapters in this book suggest practical activities for teachers, school librarians, and educational technologist to use online information to demonstrate to students how knowledge is created and distributed. The next section of this chapter presents a process for integrating online resources into lessons.

A Process for Using Online Resources

Robins (2005) has developed a six step process for using online resources to enrich lessons. The first step for a teacher, school librarian, or education technologist is to seek out at least one collaborative partner to create or transform a lesson using online resources. As Loertscher points out in the last chapter of this book, two heads are better than one when it comes to planning the type of lessons that lead to deep understanding and life-long learning. Working together, educators pool their knowledge of learners' needs, the curriculum, available resources, appropriate teaching strategies, and possible lesson activities. Because everyone in the school community is pressed for time, asynchronous,

computer supported communication can aid at this step. Using technology provides a record of the collaboration that might be useful in the future (Robins, 2005, p. 15).

The second step in the process involves analyzing curriculum standards to determine learning objectives and expected outcomes. Curriculum standards reflect the wishes of society for learning deemed appropriate enough to pass on to the next generation, and because the public funds schools, it is fitting that these standards be used in planning all instruction (Dewey, 1938). In addition, curriculum standards serve as boundary objects, providing a focal point for discussion and reflection between different members of the learning community (Star & Griesemer, 1989). The standards lay out objectives for collaborating educators, serve as a guides for students, provide an explanation of school activities to parents, and as learning directives for administrators. Since many online resources are mapped to state curriculum, standards can also be used to search for materials on the Internet, in digital libraries, and in library catalogs.

The third step in using online resources to enrich lessons is to plan ways to assess whether students have learned the lesson objectives. If possible give students a choice in the way they demonstrate their learning. This can be motivating and provides a way to differentiate instruction (Nunley, 2004). Also "give students opportunities to communicate their understanding through a variety of media—print, video, Web 2.0, and more" (Lemke & Coughlin, 2009, p. 58). This is a way to develop skills using these tools. Take advantage of opportunities to have students express their knowledge orally. According to Nunley (2004), oral assessment provides an opportunity for just-in-time, formative feedback. Oral feedback gives students individual attention. It also makes it possible to discover how well students perform with assistance. With each lesson objective, assess mastery of vocabulary. Marzano (2009) recommends using the following six steps for vocabulary building. Steps two through four work well with oral assessment:

1. Provide a description, explanation, or example of the new term.
2. Ask students to restate the description, explanation, or example in their own words.
3. Ask students to construct a picture, pictograph, or symbolic representation of the term.
4. Engage students periodically in activities that help them add to their knowledge of the terms in their vocabulary notebooks.
5. Periodically ask students to discuss the terms with one another.
6. Involve students periodically in games that enable them to play with terms. (p. 83)

As indicated in step 5 above, collaborative learning is a powerful tool in assessing lesson objectives, "today's learners expect to participate in evaluating as well as in being evaluated and to share work and feedback among their peers" (Greenhow, Robelia & Hughes, 2009, p. 251). This training prepares them for membership in today's participatory culture.

For the fourth step, building the learning environment, Robins (2005) identified three types of constructivist learning environments that can be built using online resources; project-based, inquiry, problem-based environments. The first refers to collaborative projects where students work together to contribute to a project that is larger than anything they could do individually. With the advent of Web 2.0 practices, this resembles the concept of crowd- sourcing, having a resource built by the individual contributions of a many people (Davidson & Goldberg, 2009). With K12 students, this might be referred to as 'kid-sourcing.' An example of kid-sourcing is to have students identify birds in their neighborhood and add this data to a national database on the migratory patterns of birds. Kid-sourcing can be done locally as was the case when students at a middle school in Seattle worked together to plan and execute an Earth Day Festival (Snow, 2002). Kid-sourcing projects can be done districtwide, citywide, or even internationally. The Center for Innovation in Engineering and Science Education (CIESE) is one of many organizations with Web links to collaborative projects (CIESE, n.d.).

An inquiry environment is characterized by having a multitude of resources to explore. The Internet provides such an environment, but due to its complexity, students might not be able to learn efficiently without the help of a teacher, school librarian, or education technologist. Guidance consists of creating structures in the environment using bookmarks, bibliographies, or Web pathfinders like Webquests. Within the environment, students use existing knowledge and personal interest to learn about the interrelated facets and the extensions of a topic. Inquiry learning can be viewed as a continuum, with free inquiry on one end and highly structured, directed or guided inquiry on the other (Olson & Loucks-Horsley, 2000). An example of free inquiry happens when students choose and extensively explore a topic for a research paper. Science lab experiments are examples of highly structured, directed inquiry.

Depending on the needs defined by the lesson objectives, educators design the information environment to promote desired outcomes.

A problem-based environment includes all of the information resources needed to solve a real world problem. The environment also includes mentors who aid students when necessary. Problem-based learning was introduced in medical schools in the 1960s. The components involve "problem formulation, abstracting, applying knowledge, self-directed learning, and reflecting" (Koschmann, Kelson, Feltovich & Barrows, 1996, p. 98). The problems are messy and might not have a clear solution. These are not problems where a standard solution exists in a textbook or on the Internet. Problem-based learning works best when groups of students formulate ideas, brainstorm, and discuss ways to proceed. Graphic organizers are particularly useful for analyzing problems, organizing findings, and tracking progress. Mentoring students takes skill as mentors model strategies for information seeking, critical thinking, and problem-solving. Mentors know when to step back and let students struggle through the problem-solving process and when to scaffold their learning (Koschmann, et al.).

Inquiry and problem-based environments can be combined. Deciding on a learning environment includes considering the lesson objectives and the availability of resources.

Once the environment is selected, the fourth step in the process for transforming lessons is to look for opportunities for social interaction within the learning environment. Vygotsky determined that learning is inherently social and that children learn best when interacting with others (1978). Social psychologists "have established quite conclusively that collaborative learning is beneficial across class and culture, race and religion" (Davidson & Goldberg, 2009, p. 38). Students have a desire to "teach about [about themselves] and to express ideas, feelings, and values" (Bruce, 1998, para 3). Students not only learn content from each other, they can model processes for learning, problem solving, and metacognition.

Brown, Collins, and Duguid (1989) demonstrate how the apprenticeship model of learning is effective because it invites learners to participate in work practices that are inherently social. The researchers found that learning is as much about becoming part of a community as it is about acquiring content knowledge. This taps into the basic human need to belong socially (Maslow as cited by Boeree, 2006). In chapter three Loertscher presents fifteen 'Think Models." These are variations and combinations on collaborative learning structures that add social interactions to lessons in ways that lead to richer learning experiences.

The Internet affords opportunities for social interaction. Web 2.0 is defined as social, digital technology, facilitating participatory, collaborative, and distributed practices (Greenhow, Robelia, & Hughes, 2009, p. 247). However, the Internet was designed to support collaborative learning since its inception. Even Web 1.0 offers "the potential for shared and interactive learning that Tim Berners-Lee and other pioneers of the Internet built into its structure, its organization, its model for government and sustainability" (Davidson & Goldberg, 2009, p. 1). Online resources enhance curriculum by making possible the kinds of activities that spark inquiry; promote problem-solving, information literacy, and media literacy skills; and invite collaboration.

The sixth and final step in the process for using online resources to enhance lessons is to celebrate when the lesson is complete. Celebrate the collaboration between teachers, school librarians, and educational technologists. Let administrators know what was achieved through the effort. Display student work to celebrate learning. Access to student work via the Internet makes it visible to peers and parents. Above all, use the experience to demonstrate to students that they are valuable, contributing members of the learning community in the school, town, nation, and the world. Using online resources and providing information rich learning opportunities invite students to belong to the participatory culture.

Online (and Print) Resources in Use

Treasure Mountain conferences are unique in that they provide an opportunity for practitioners and researchers to meet together to share knowledge, experiences, and ideas. The themes of the conferences; collaboration, information literacy, self regulation, self directed learning, and leadership are woven throughout. Behind these themes the role online resources play in enhancing learning emerges. The chapters in this book are divided

into three parts. The first demonstrates how learning is enhanced when learning activities take place in information rich environments. The second part presents practical examples of how to restructure lessons to use both print and online resources to motivate students and to create participatory learning experiences. The chapters in the final part of this book present ideas for enlisting the entire school community in a collaborative effort that uses information resources to enhance learning.

Introduction to Deeper Learning

In the next chapter Jean Donham describes the attitudes students need to become self-directed, active learners. The dispositions for learning that she presents have information literacy as their foundation. Donham makes a persuasive case for why these dispositions are the entitlement of every student.

In chapter three, "Building Deep Understanding in the Library by Banning Bird Units and Replacing Them with High-Level Thinking Experiences," David Loertscher answers questions educators might ask before they embark on transforming lessons. He describes information rich environments and compares them to traditional learning environments. He presents information literacy as a process in contrast to Donham's presentation of information literacy as a set of dispositions. Taken together, these two views provide an external and internal view of the desired outcomes for the 21st century learner. Loertscher's fifteen "Think Models' are presented at the end of this chapter. These collaborative structures promote social interaction within lessons that invite students to join today's participatory culture.

In chapter four Carol Koechlin and Sandy Zwaan describe how inquiry is also a catalyst for acquiring information literacy skills. These authors offer advice and tools for generating inquiry. Inquiry provides the motivation for students to direct their own investigations using online resources.

Lessons that Promote Participatory Learning

Loertscher's models were used by his students to plan information rich lessons. To illustrate these ideas in action, five lesson plans are presented in chapter five. Deborah Long Teresa Capasso presents two lessons, one on Israeli/Palestinian Conflict and one that demonstrates how fairy tales can be used to spark inquiry and deep thinking. Sarah Bosler presents a lesson plan for studying the effects of the Industrial Revolution. Deborah Long provides a lesson on Civil Rights leaders. She also shares a practical lesson on problem solving by having students develop an efficient way to clean up their campus after lunch. Together these examples provide an introduction to the way transformed lessons support student inquiry and problem solving.

In chapter six Francis Jacobson - Harris describes a lesson where students used online resources to write fictional accounts of the Great Depression that occurred in the United States in the 1930s. Students used primary source materials available through the Library of Congress American Memory Project, an online, digital library. Students used photographs taken during the depression as prompts for a creative writing project.

Providing students with access to multiple representations of the period provided an authentic experience. They developed media literacy skills as they learned how subjective historical accounts can be and how differing perspectives can all be valid. The lesson weaves theory and outcomes into a practical lesson that illustrates the value of using primary source, online resources.

Patti Foerster's lesson, described in chapter seven, does not involve online resources or technology, but presents ideas for how information rich lessons can be scaffolded to support learners at all skill levels. She demonstrates a key characteristic of learning in the 21st century, the idea that all students have something to contribute to the learning community (Rotherham & Willingham, 2009). Learning outcomes were accomplished through careful planning and the use of tools that are available in an online environment. An important aspect of Foerster's lesson is that assessments were imbedded in the products students created as they learned.

Collaborating to Enhance Learning

The role of teacher librarians and education technologists is to make teachers successful. Teachers' success depends on students' success, which is measured by achieving objectives outlined by grade level standards. Collaboration with teachers makes it possible to produce information and technology rich learning experiences built with curriculum standards in mind. The final section of this book looks at the need for collaboration to meet standards-based learning objectives. Examples of high level and low level collaboration are provided. Roles for the school librarian and by extension, the educational technologist are defined and illustrated. This section culminates with a description of a collaborative school which is organized around the needs of the learner.

In chapter eight Eric Meyers' discussion of collaboration is directed at the teacher librarian but could be applied equally to collaboration involving the educational technologist. Meyers describes how problems with the collaboration process can disrupt learning rather than enhance it. His research shows that it is important to be purposeful when collaborating. He demonstrates the need to consider the collaboration process as well as the objectives. For example, establishing roles can ensure goals and objectives are met in an efficient way. As curriculum coaches and resources managers, teacher librarians and educational technologists enable teachers to integrate resources and skill building into lessons.

In chapter nine Sara Wolf and Tamara Jordan report on a collaborative lesson. They describe the collaborative roles of the teacher and teacher librarian, how their students were motivated, and how the learning was scaffolded. Finally the educators reflect together and collaborate on ways to improve the lesson. Wolf and Jordan demonstrate how third grade students develop information literacy skills and self regulation. The students were also able to use online resources and presentation software. The lesson took longer than expected, but by making students cognizant of the objectives, the researchers feel students can be enlisted to create a more efficient process.

In the final chapter David Loertscher writes about the collaborative school. A collaborative school revolves around the needs of the learner rather than the needs of the organization. The teacher librarian, the educational technologist, the special education teacher, and the teachers in special areas such as art and music form a pool of educators who are available to collaborate with classroom teachers. They can work together to plan and implement learning experiences that require high level thinking and that develop the skills and dispositions students need to be successful in the 21st Century. The school's curriculum map can serve as a focal point for all lesson planning. In Loertscher's vision a collaborative school is one where it is obvious that two heads (or more) are better than one when it comes to educating students.

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PART 1

INTRODUCTION TO DEEPER LEARNING

CHAPTER 2

GRADUATING STUDENTS WHO ARE NOT ONLY "LEARNED" BUT ALSO "LEARNERS"

JEAN DONHAM

In the 19th and early 20th century, a person who had acquired enough knowledge was considered "learned" or "educated." Writing in 1984, Richard Derr quotes from R. S. Peters' 1967 definition of an "educated person":

> *"According to Peters, we call a person 'educated,' if (1) he (sic) has some body of knowledge; (2) he has an understanding of principles which provide an organization for facts, (3) the body of knowledge characterizes his way of looking at things, (4) he is committed to the standards on which the body of knowledge rests, and (5) he possess a broad cognitive perspective."* (Derr, 1984)

Toady's graduates must leave school with knowledge, to be sure. However, the pace of new knowledge generation and change calls for today's graduates to be more than "learned" or "educated." Today's graduates must be learners as well. A learner must possess knowledge, skills, and dispositions that will facilitate their continuing to learn independently past their school years.

Consider these facts from *Did You Know?,* a video by Karl Fisch, Director of Technology at Arapahoe High School in Colorado; Fisch provides the video and citations for the facts he cites and these can be found at his blog (http://thefischbowl.blogspot.com/).

- One in four workers today is working for a company for whom they have been employed for less than one year (United States Department of Labor).
- Today's learner will have 10 to 14 jobs by the time they reach the age 38 (United States Department of Labor).
- The top ten jobs that will be in demand in 2010 did not exist in 2004 (Richard Riley, Former Secretary of Education citing *The Jobs Revolution: Changing How America Works* by Steve Gunderson, Roberts Jones, and Kathryn Scanland*).*
- One week's worth of *New York Times* contains as much information as a lifetime's worth of information in the 18th century (Richard Wurman in *Information Anxiety*).
- Over 2.7 million Google searches are performed each month.

The number of words in the English language is estimated at 240,000—five times the count in Shakespeare's day

- Technology information doubles yearly; this implies that for a student in a four-year technical program, half of what was learned in the first year could be outdated by the third year!

Fisch's observations bring home the reality that our graduates must be learners in order to survive the dramatic and rapid changes they will encounter in their lives. We find today a substantial number of initiatives and standards aimed at defining the knowledge and skills that graduates much possess. For example, *Results that Matter* is the product of work by a partnership among corporate, education, and government entities to arrive at a vision for 21st Century Learning. The vision proposes the following key elements:

- Core subjects: English, reading or language arts, mathematics; science; foreign languages; civics; government; economics; art; history; and geography.
- Emerging content areas: global awareness; financial, economic, business and entrepreneurial literacy; civic literacy; health and wellness;
- Learning and thinking skills: critical thinking and problem-solving; communication; creativity and innovation; collaboration; contextual learning; information and media literacy skills;
- ICT literacy: ability to use technology to develop knowledge and skills, in the context of core subjects
- Life skills: leadership, ethics, accountability, adaptability, personal productivity, personal responsibility, people skills, self-direction, social responsibility.
- Assessments: use of standardized and classroom assessments

Results That Matter is just one of many proposals for what students should learn in school. Similarly, each discipline has defined its standards for the knowledge and skills that students must possess, e.g. , National Council of Teachers of Mathematics, National Council for the Social Studies. The pressures for accountability and assessment increase the likelihood of emphasis on knowledge and skills that are readily measured through standardized and/or objective testing.

Knowledge and skills across the disciplines provide an essential foundation for students to face the world of change that they will encounter. However, development of a static knowledge bank will not serve them well in the world they will enter upon graduation, if Fisch's descriptions and predictions are on target. It will be development of dispositions toward learning and skills to continue to learn that will be of utmost importance in their lifetimes. Students must have a disposition toward inquiry. That is, they must be curious and ready to pose significant questions. Ron Ritchhart (2001) explores the question of

disposition for learning as an alternative view of intelligence. Ritchhart proposes that intelligence may in fact be construed as "a collection of cognitive dispositions that capture one's tendency to engage in certain patterns of thinking" (p. 143). Citing Baron, Ritchhart asserts that dispositions are "learned tendencies or cognitive styles under our control." The notion that dispositions can be learned stands in sharp contrast to the definition of intelligence as a measure of inherent abilities. Upon examination of six researchers' lists of dispositions toward learning and habits of mind, Ritchhart synthesizes them into seven categories.

Costa and Kallick (1999) use the phrase "habits of mind" to describe a similar concept about learners and learning. In their work, they list sixteen "habits" not dissimilar from Ritchhart's "dispositions." In their discussion of habits, Cost and Kallick assert that educators are "interested in enhancing the way students produce knowledge rather than reproduce it" (p. 7). They propose that educators want students to inquire and think flexibly.

Similarly, the draft version of the American Association of School Librarians *21st Century Library Learning Standards* propose not only skills, but also dispositions. The importance of dispositions is evident in initiatives underway to examine college readiness as well. Ritchhart's list of dispositions for learning are generic, i.e., cutting across all disciplines. However, there are nuances of dispositions for learning that may be unique to specific disciplines. The Center for Educational Policy Research at the University of Oregon has sought to define what high school graduates need to know and be ready to do in order to succeed in higher education. With funding from the Pew Charitable Trusts and sponsorship from the Association of American Universities, this organization has set out to examine the question of readiness for college. While preparation for higher education is the explicit focus of their work, it is difficult to argue with the appropriateness of much of their work for graduates who choose other paths after high school as well. Their work is published in three forms: a booklet entitled *Understanding University Success*, a book entitled *College Knowledge*, and a website at http://www.s4s.org. While readers will find here knowledge and skills not unlike those found in other standards and school reform initiatives, the point of emphasis here will be on "dispositions," i.e., what attitudes toward learning ought students to have as they leave high school? If students will indeed enter an age characterized by remarkable change in the information landscape, it will be their *disposition* toward learning that may in fact be most important to their success.

In *Understanding University Success*, standards are defined for English, Mathematics, Natural Sciences, Social Sciences, Second Languages, and the Arts. In Table 1, descriptions of dispositions for learning from Ritchhart, Costa and Kallick, the American Association of School Librarians, and *Understanding University Success* are compared. These dispositions are essential for success in an era of rapid and deep change and knowledge growth.

Table 1. Dispositions for learning

Ritchhart	Costa and Kallick	AASL	Examples from *Understanding University Success*
be open-minded	thinking flexibly taking responsible risks remaining open finding humor listening with empathy creating	maintain openness display resilience demonstrate creativity	"ability to view facts from multiple perspectives"—Second Languages
be curious	persisting responding with awe	display curiosity appreciate literature	"must allow questions to emerge from the text"—English "inquisitiveness and willingness to investigate the steps used to reach a solution"—Mathematics "curiosity and a willingness to explore many layers of meaning"—The Arts
be metacognitive	thinking about thinking	demonstrate confidence and self-direction	"taking risks and accepting failure as part of the learning process"—Mathematics "acceptance of failure and ambiguity [are] part of the experimental process"—Natural Sciences
be strategic	applying past knowledge to new situations striving for accuracy	demonstrate adaptability demonstrate teamwork	"integrating scientific methods and contextual understanding, critical thinking, and hands-on skills"—Natural Sciences
be investigative	questioning and posing problems	display initiative and engagement	"using experimental thinking"—Mathematics

reason	managing impulsivity thinking independently communicating with clarity	maintain a critical stance	"make connections regularly between public knowledge and personal observations and experiences"—Social Sciences "make connections across disciplines"—Social Sciences
use evidence	gathering data with all senses	test against evidence	"make supported inferences and draw conclusions based on textual features"—English

There is remarkable similarity among these portrayals of the disposition of a learner. A challenge for educators is to design experiences that facilitate students developing these dispositions—it is the opportunity to leave school with the dispositions of a learner that should be the entitlement of every American high school graduate.

Library media programs occupy an ideal place for collaboration with teachers from all disciplines to develop in students such dispositions for learning. Library media centers can be the exploratoriums in schools, and teacher librarians can be the docents, the guides, the facilitators for students' explorations. If one were seeking a single word to summarize the dispositions Ritchhart and others propose, *inquiry* may be that word. Kuhlthau (2001) describes inquiry in this way:

> *Inquiry-based learning is an approach to instruction that centers on the research process. . . Students are guided through inquiry by asking themselves: What do I already know? What questions do I have? How do I find out? And finally, what did I learn? Inquiry takes students out of the predigested format of the textbook and rote memorization into the process of learning from a variety of sources to construct their own understandings.*

Inquiry-based library media programs afford schools the opportunity to provide:

- a skill set for learners
- a context for developing the dispositions necessary to be learners
- resources to support learning-to-learn experiences
-

Foundation skills are essential for the independent learning that graduates must be prepared for in their adult world of rapid change. These skills can be summarized as the skills necessary to locate, access, evaluate, interpret, and communicate information. While these skills can be readily summarized, they represent a complex set of competencies that depend upon ability to initiate substantive questions, to read and think critically, and to use technology at all stages of the information process (to access, to analyze and interpret, and

to communicate). The skill sets are defined more fully in The 21st Century Library Learning Standards from the American Association of School Librarians (web site) and National Educational Technology Standards from the International Society for Technology in Education (http://cnets.iste.org/students/s_stands.html).

The challenge for schools to develop the appropriate dispositions for a world of rapid change may be more complex. If we use Ritchhart's synthesis of the dispositions of learning, we can perhaps consider how the library media program contributes toward developing such dispositions:

- *Be open-minded*. A foundation principle for library collections is the provision of multiple perspectives. By engaging students with a range of resources that bring students into an intellectual exchange, teacher librarians can create a context that encourages consideration of multiple viewpoints. An environment of acceptance of difference is essential. The library should be the politically and socially neutral environment that avoids pre-judgment and encourages exploration.

- *Be curious*. By providing an array of resources that can pique interests of students, the school library media center can serve as the stimulus for curiosity. While essential, a collection of current and high-quality resources alone will not be enough to engender curiosity. Teacher-librarians must serve as mediators between students and the collection. In that role, they can model curiosity as they help students consider what questions they could pursue and guide them to resources in that pursuit. Whether they are sharing stories with young children and encouraging questioning and further exploration or they are discussing ideas for a senior research project, teacher librarians offer unique expertise in the inquiry process.

- *Be metacognitive*. When students engage in any sort of library research, it is important for them to learn to ask and answer the questions, "When do I have enough information?" and "Is my information of high enough quality?" and "Am I pursuing a worthwhile question?" "Have I investigated various perspectives?" A disposition of self-assessment can readily be taught in the context of the library media program. As we consider the world of information change for today's students, such a disposition will be crucial to them as independent learners.

- *Be strategic*. The library media center provides an excellent laboratory for strategic thinking. To begin, students must have an appropriate mental model of the information search process—they must see it as a process of authentic inquiry, not a process of transfer of information from a source to their end product. The library media program needs to help students learn to be planful as they pursue interests of their own. If they are engaged in appropriately complex assignments that are open-ended so that they generate their own questions and learn to design strategies for information problem solving, they will gain practice at strategic thinking. However,

strategic thinking does not necessarily occur without guidance, instruction, and prompting.

- *Be investigative*. Given appropriate prompts and opportunities, students can use the library media center to explore and to problem-solve. Topical queries are too superficial to be truly investigative. Teacher librarians help students focus their investigations narrowly enough that they can examine questions in depth and arrive at findings and insights of significance.

- *Reason*. The library media center offers a reasoning playground. When a teacher librarian and a classroom teacher plan together, they can create meaningful opportunities for students to develop their abilities to reason. The role for the teacher librarian is to challenge students' assumptions, question their assertions, point out fallacious reasoning, and insist on adequate evidence and evaluation of sources of information. A teacher librarian values persistence in the inquiry process.

- *Use evidence*. By searching for information in the library media center, students can develop an appreciation for the use of evidence to support an argument or to make a decision. Challenging the authority of sources, teaching students to seek verification and to reconcile differences between sources of information are the kinds of critical thinking skills that can be taught when students are working with information from an array of resources—processes not possible in textbook-only instruction.

In order for the library media program to contribute to the development of these dispositions for learning, collaboration between the classroom teacher and the teacher librarian is essential. Much of what students learn in school is situated in the context of the assignments their teachers design for them. Working with a teacher librarian, classroom teachers can design assignments that capitalize on the library media program's potential to facilitate students developing dispositions toward learning. A crucial consideration is that these assignments must engage students in work that will challenge them to be curious, to be open-minded, to reason, to be metacognitive, etc. Gordon (1999) posits that "Reporting has masqueraded as researching for so long that the terms are used interchangeably." Indeed, we want students to extend beyond reporting to arriving at insights—at seeking answers to authentic and substantive questions. In the words of Newman, Secada, and Wehlage (1995), they must be assignments that will engage "students in using their minds well." These researchers consider critical criteria for student assignments to be:

1. students constructing meaning and producing knowledge;
2. students using disciplined inquiry; and
3. students aiming their work toward production of discourse with value beyond success in school.

To gauge how well assignments meet those criteria, they define four standards of authentic instruction:

1. *Higher order thinking*. Analysis, synthesis, and evaluation are processes residing at the higher order of complexity.
2. *Deep knowledge*. Focusing on central ideas of a topic with enough thoroughness to explore connections and relationships and to produce relatively complex understandings.
3. *Substantive conversation.* Students engage in extended conversational exchanges with the teacher and/or their peers about subject matter that builds an improved and shared understanding of ideas.
4. *Connection to the world beyond the classroom.* Students make connections between substantive knowledge and personal experience.

Teacher librarians working in collaboration with classroom teachers can design assignments that meet these criteria. The library media center provides the context where these assignments can be pursued in a setting where the teacher librarian remains mindful not only of the skills necessary to accomplish information work, but perhaps more importantly of the learning dispositions to be developed. Awareness of dispositions requires that teacher librarians take proactive and intentional steps to develop and support learning dispositions; these might include:

- *Modeling learning dispositions*. Thinking aloud to model curiosity or open-minded dispositions is one strategy for modeling. For example, a teacher librarian might be heard saying, "That makes me wonder. . ." Or, "What might be the argument on the opposing side of this question?" Or, "What evidence supports that assertion?" Or "How strong is the evidence on the other side of the argument?"
- *Posing and encouraging questions that generate authentic inquiry.* Teacher librarians and classroom teachers use the Newmann, Wehlage, and Secada four criteria for authentic assignments to design assignments.
- *Encourage metacognitive behavior*. Students may be required to keep a reflective research journal where they record their perceptions about their progress. Or, students might write a reflective self-assessment describing what they might do differently if they were to approach an assignment anew.
- *Reason and use evidence*. Teacher librarians and classroom teachers together guide students in critically selecting and reading articles to assess evidence and logic.

Intentionality is important. It is not enough to mention or expect that students will develop dispositions of learning as by-products of their school experiences. Developing the disposition of a learner occurs by design. Collaboration between teacher librarians and classroom teachers can result in assignments and activities that aim intentionally at

authentic inquiry and at developing dispositions that will results in graduates who are learners.

Recall the innate curiosity and enthusiasm for learning evident as the kindergarten child arrives at the school house door. It should be the entitlement of every high school graduate to leave the school house with that same curiosity and enthusiasm to learn. It is up to all educators to help not only sustain but enhance those dispositions for learning in order to send off a generation of graduates ready to be learners in a changing world.

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CHAPTER 3

BUILDING DEEP UNDERSTANDING IN THE LIBRARY BY BANNING BIRD UNITS AND REPLACING THEM WITH HIGH-LEVEL THINKING EXPERIENCES

DAVID V. LOERTSCHER

Introduction

The evolution of the school library from a support/supply center into a force for learning has been a goal of school library leaders for half a century. Frances Henne had such dreams for the field and wrote them into the 1960 standards for school library media programs. Looking back half a century, a collaborative role, a leadership role, and a force for achievement has been difficult for the bulk of our professionals. My own theory of the reasons for this situation lie in the fact that the warehouse duties of the librarian are so overwhelming and take so much time during a typical day, that our professionals do not take the time to collaborate.

We do have outstanding examples of librarians who have discovered the collaboration role, have a large enough staff to pursue that role, or just grit their teeth and put it as their highest priority no matter the crush of other duties. Obviously, enough of our professionals do some things right every day because their efforts show up in the Lance studies that link library media programs to achievement.

Two types of programs seem to be popular in the field today. The first are those professionals who emphasize reading as a foundational element of their library program. These professionals carry the torch of the "love of reading," leaving the skill of reading to be taught by the classroom teacher. Recently, more and more professional literature has been aimed at teaching librarians to become a part of the reading team and showing them how to integrate reading skills naturally into their literature programs. The other large segment of the field seems to concentrate on the teaching of information literacy skills as their central focus. This is largely the result of Michael Eisenberg's leadership in pushing information literacy to the consciousness of the field.

Two forms of information literacy instruction seem to predominate at the moment. The first is to teach information literacy skills as a course of instruction to be experienced by students in a systematic fashion at each grade level. Scope and sequence matrices have been published by many states and there are many professional guides that help the librarian build such a curriculum. This type of instruction is particularly popular in

elementary schools where fixed library schedules predominate. Doug Johnson, a prolific writer and speaker in the field advocates this approach.

The second but less popular form of teaching information literacy is to teach library skills "just in time" as assignments or projects make their way through the library during the school year. Touted as superior by the majority of writers in the field, this type of teaching rests upon the foundation advantages of integrated teaching and practice of skills at the time when they are beneficial.

This paper advocates that a third wave of interest become center stage in library media programs as a means to integrate the previous two into a holistic program. We refer to collaboration as the star-studded element and the central element into which both reading and information literacy fold in quite nicely. This means that a traditionally weak program element would be thrust into prominence with its tentacles reaching into every classroom of the school and recognized as a prized contributor to achievement.

The problem with collaboration, however, is that our professionals to not seem to identify it the same way. Many count cooperation or support, or service as collaboration when the professional literature defines it quite differently. Many authors could be quoted to define collaboration as a librarian and a teacher jointly planning, executing, and evaluating a learning experience – a team teaching effort done together, taught together, and evaluated together.

But what is an exciting learning experience that is collaboratively implemented? Our contention is that in the past, too many learning experiences in the library were much too low-level resulting in very little learning. We coined the phrase, "Ban Those Bird Units" referring to a process of replacing low-level learning experiences with much higher-level ones.

In the introduction to the book *Ban Those Bird Units: 15 Models for Teaching and Learning in Information-Rich and Technology-Rich Environments*, the focus is aimed at the teacher rather than the librarian. It explains in as clear a defense as the author could write what bird units are, and how to replace them with the help of the librarian to become exciting learning experiences.

We thought it proper to reprint that introduction here asking readers to test the clarity of its explanation and challenging them to do an even better job of communicating what the library can do to enhance teaching and learning. Here it is:

An Introduction to Bird Units

There are certain types of research assignments that contribute little or nothing to learning. Teachers should recognize such low-level activities and re-design to build achievement

What is a "bird" unit?

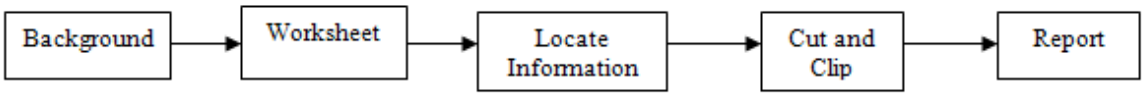

Figure 1: Pattern of a bird unit lesson.

As figure 1 illustrates bird unit usually follows this common pattern:

1. The teacher provides background to a topic in the classroom (could be birds, presidents, countries, states, people, etc.).
2. Textbook work is done.
3. The teacher asks the class to do a project in the library or computer lab and provides a worksheet for data collection. The worksheet contains fact questions.
4. Students pick a "bird" to research and go to the library or computer lab where the librarian or technology coordinator introduces them to a few resources.
5. Students copy information from information sources onto their papers.
6. Students report back to the class or turn the papers in for a grade.

Why is a "bird" unit generally a disaster?

When the majority of research in the library or computer lab is merely the cutting and clipping of information into some sort of report, little learning takes place. In the age of technology, students can easily cut and paste megabytes of information from the Internet or electronic sources and turn them in as a report. Obviously, time in the library or computer lab is underused and little progress toward educational achievement is made. In fact, assignments like these encourage plagiarism.

What is to be done?

1. Re-design the activities so learners must THINK ABOUT and analyze the information they collect in the library media center, thus increasing learning and achievement.
2. Re-design activities so that learners must DO SOMETHING (synthesize) with the information they collect (such as sense-making, performing, trying out, acting, building, etc).
3. Keep redesigning activities until number one and number two happen.

This book contains fifteen models to use, as the classroom and the library and/or computer laboratory are merged for a learning experience. Each model is designed to insure that students develop understanding and build knowledge. The design of each model requires

students to not just cut and clip or extract information, but forces them to use that information in a higher-level thinking activity. The objective of the Model is preparing students to achieve and learn more in the real world of information and technology. The models do not ask you to abandon any successful teaching method, but suggest simple changes to elevate the learning experience dramatically. The models are based on experience and educational research and are designed to work in an information-rich environment pictured below.

Reflecting on transformed learning experiences

As the collaborative team plans, transforms, or reinvents a learning experience into one of the models of the book, here are some reflective rubric-like statements to consider. The transformed unit:

- Was true to the model or was a creative adaptation of it.

- Caused students to use higher-level thinking resulting in deeper understanding. We are confident that the students learned more because of our new design.

- Made use of QUALITY information resources and APPROPRIATE technology.
- Integrated information literacy and technology skills into the learning experience.

- Was a true collaboration of teachers, librarians, and technology professionals.

- Was so successful that we plan to do it again, or we know how to tweak it to make it even better next time.

Introduction for Educational Leaders

Why such a crazy title? What are Bird Units? And why do you have something against birds?

For decades, school, public, and academic libraries have been plagued by "bird units." Bird units come in two different species: Fill-in-the-Blank Worksheet Birds, and Report/Term Paper Birds. So ubiquitous are these two species that they have crowded out every other kind of beneficial species and are as welcome as a New York City pigeon or a crow in a garden patch.

Permit us to illustrate.

Story One:

Teacher X is faced with teaching the "bird unit" for the tenth time in a decade of teaching. The bird unit topic could be Civil War, California Missions, old/famous/white dead men…etc., ad infinitum. The unit is to last from Monday until Friday. Days one and two are taken up with a brief introductory lecture, the reading of a textbook chapter, and having students answer the chapter questions.

Wednesday. Time for a change of pace. Search the files. Find that sheet with all the purple writing on it (you have to be old to understand this joke). Take the worksheet to the copier and now you have a worksheet printed in black. Breeze past the library to inform the librarian of the impending invasion.

March the class to the library. Give each student a worksheet. Say: "Pick a bird—any bird and answer the questions." Hopefully, the librarian has had time to pull the bird books onto a cart for easy location. Students rifle through the books looking for "their bird" and the answers to their questions.

To young Susan's dismay, there isn't a whole book on the Rocky Mountain spotted woodpecker. She grumbles, adding to her tally that once again this library is a failure. Juan is disappointed because he did find a book on the ruby-throated hummingbird, but the answer to the first question was not on the first page, so he bops Susan on the head with the book and they both start fighting. Since teacher X has escaped the scene to the teacher's lounge, the librarian calms the troops and helps everyone find something to use.

The worksheet assignment is to locate a few facts, and we know them already:

- What does my bird eat?
- What color is my bird?
- Where does my bird live?
- Does this bird migrate? If yes, where?
- Etc.

Forty-five minutes later, the teacher re-appears, gathers the chicks, and for the next two days, students do reports in the classroom on their birds.

The last activity on Friday is the test, assessing what students learned from the lecture and the textbook but nothing from the "library" activity. The library activity was a goose egg—the tenth goose egg in fact. It has been a test of whether a student can find a fact and then copy it from one place to another: a first lesson in plagiarism.

Story Two:

Teacher Y usually spends three weeks on bird ecosystems. The first two weeks are filled with textbook/lecture activities. On Friday of the second week, the teacher announces that the next week will be used to do a library research paper. It has been difficult to get the class scheduled every day in the library for a week, but our teacher has planned ahead and gotten on the calendar.

On Monday, the assignment is given. "Pick a topic having to do with birds you are interested in and write a six-page report." During the research time in the library, the teacher has the librarian conduct the class but is available for questions while grading papers in the corner.

Andrew, one of the students in the class, has had this kind of assignment before and knows exactly what to do so that he can spend most of his library time flirting with Theressa, his latest flame. He seats himself at a library computer and finds that the Internet is down. No worry, he will connect from home on Thursday night to download a paper from his favorite "term paper site" and turn it in Friday morning. No use sweating this one out, particularly since he has two other papers due the same day and every night is taken up with his part-time job. Andrew doesn't know much about birds, but he knows a lot about searching the Internet (using it to cheat) and succeeding with girls.

Story Three:

Teacher Z has been feeling the pressure of both the state standards and the standardized testing and is trying to find a way to cover more material in the same amount of time. Needing more time to focus student attention on what will be tested, the library bird units of the past are cancelled, in favor of parsing sentences.

Our three scenarios are stereotypical but all too common. As a reader, you probably have lived through something similar when you were a student. Perhaps you have taught a bird unit at one time or another.

We propose the banning of goose egg—non-helpful—bird units as low-level learning experiences. They are counter-productive in today's emphasis on achievement and boring, boring, boring to students. To cut out the library experience, however, is no solution at all.

P.S. We have nothing against birds!

What do you mean by "Information-rich and technology-rich environments?"

Permit us a bit of background.

START WITH A TEACHER. Millions of children in the world today have very limited information systems to educate them. They have the wisdom and learning of their parents and their communities, but have only a teacher for more formal education: no fancy facilities, no books, no blackboards, no computers, no desks. To these students, the sum total of information is in the head of their teacher. As a result, rote learning is the primary activity of the school day.

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

The problem with the textbook culture as an information system is now becoming a major challenge. The textbooks of today:

- Are often bloated, as the amount of knowledge in many disciplines explodes.

- In addition to core knowledge, all kinds of exercises, side bars, supplementary materials (at additional cost) and every other imaginable resource that a teacher might use, including digital resources available on line.

- Often cost in excess of $100 per copy and weigh so much that parents demand a copy at school and one at home.

- Can only be read by a percentage of the students in the classroom because of low reading level or language problems.

- Are not challenging enough for other students

- Become outdated because of replacement costs

- Often do not correlate well with state standards and state tests.

In the introduction of a recent college textbook, the editor said something to this effect: "All you need to know is in this book and its online supplement of thousands of digitized articles. No need to use the library." An attractive promise indeed. Since the conglomerate publishing company owns many periodicals, publishes many prominent author's works on the topic, and has the capability to deliver its products in any form and at any time, it seems logical to package a total information environment at the highest price the market will bear. From one vantage point, if standards, testing, and the textbook are controlled, then we only have to require teachers to be accountable for the prescribed material. "Here is what to teach. And, here is the schedule of the page you should be teaching from each day of the school year."

Given the problems with the textbook, many have asked: "Isn't there another solution?" While total packaging and regimentation is possible and workable in some countries, it hardly fits the model of a creative and innovative society. We believe that all students would thrive in the next stage of a rich information environment.

Turn on the information-rich and technology-rich environment.

In the eighteenth century, Dennis Diderot felt that the universe contained a finite amount of knowledge and that almost all of what could be known was known. Thus, he created an *Encyclopèdie*, feeling that all knowledge could be captured and summarized in a single set of volumes. In the late 19th century, Melville Dewey also felt that his classification system would go through only a few editions before it could classify the sum total of all knowledge. The Dewey Decimal System is now in its 22nd edition and is being revised regularly to keep up with the expanding knowledge of the world.

With the introduction of the microcomputer and the Internet in the last decade of the 20th century, the world of information has changed dramatically. Suddenly the information pool has deepened to an ocean, and access through technology is ubiquitous. Schools are making progress toward wireless access—even Starbucks has hot spots. In such an information environment, everything changes, or at least needs to.

What is an information-rich environment?

The illustration in figure 2 details the components of information-rich and technology-rich environments, as we know them today. This evolves, of course, as various technologies and delivery systems evolve.

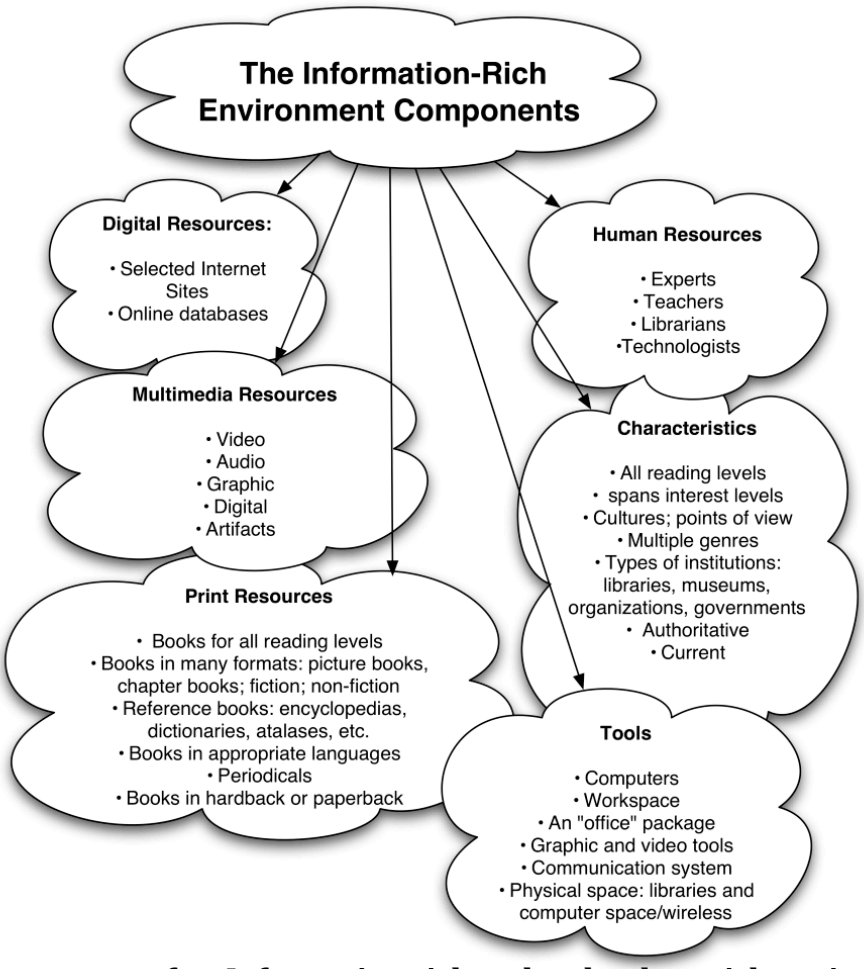

Figure 2: Components of an Information rich and technology rich environment.

What do we know about the Internet in its decade of major expansion?

- It has billions of sites and may crash under its own glut.
- Contains anything anyone wants to put up including pornography, advertising, chat spots of nefarious characters, and information from any kook who cares to post.
- Allows organizations of all types to post their official information or misinformation.
- Has become a powerful political tool around the world
- Contains more misinformation than accurate data.
- Is becoming outdated as sites are not kept up.
- Is becoming less and less "free" as authors try to recoup their costs of creation and maintenance.
- Is so overloaded with noise from unwanted email and other propaganda that its burden on the individual is almost unbearable.

More importantly, what DOESN'T the Internet contain?

- Almost all copyrighted materials, because authors expect to be paid for their work.
- Almost all fiction and nonfiction books published in the last 75 years—in other words, everything you'd expect to find in a Barnes and Noble.
- Virtually all children's literature published in the last 75 years
- Full-text articles in most magazines and newspapers.

However, FOR A FEE, one can access through the invisible Internet:

- Full-text magazine articles and newspapers, some extending back into the 1980s.
- Current audio books.
- Current music.
- Major databases critical for students and teachers.
- More and more digitized e-books (current copyrighted books usually in PDF format).
- Thousands of term papers and reports ready to download and turn in to a teacher.

And you thought the Internet was free. Well, there's Shakespeare, along with many of the other classics. And there's plenty of stuff at least a century old. But if you want current research, it's going to cost precious shekels.

Yes, I know we are in an information-rich and technology-rich environment, but what is your point?

The point is, in the last twenty years, teaching in a sparse information environment or in a textbook/lecture culture has become antiquated. The real world, and the world our students will live in for the foreseeable future, is a very information-rich and technology-rich world of information. Continuing to teach in an outmoded information space is to continue to use horse and buggy technology in the space age. Table 1 below contrasts both poor and rich information environments.

Table 1: Poor and rich information environments

Tightly Controlled and Smaller Information Environment	An Information-Rich and Technology-Rich Information Environment
Advantages: • Everyone on the same page at the same time. • Easy to tally "what has been covered."	Advantages: • Information and technology for each learner at their skill level/language level. • Interest level easier to satisfy. • Variety in itself a motivator. • Simulates the real world of work and life in general. • Can stimulate all learning styles.
Disadvantages: • Learners not on the level of the textbook/lecture/assignments. • Satisfies only one learning style.	Disadvantages: • May get out of control. • Usually takes more time if not planned well.

Our second point is that few curriculum leaders, policymakers, school administrators, and teachers have taken any notice. True, we have spent billions on hooking kids up the Internet and turning it on, but we have paid less attention to what's on the wires than the wires themselves.

What do you mean, "education has not taken notice?"

Consider our observations and challenge them if you can:

- National standards for the various curricular areas—such as social studies, science, or math—may refer to the need for computers but either ignore the issue or assume that a high quality information system will be provided.

- Programs at national professional educational associations rarely have sessions addressing how to teach or learn in the new information-rich environments. There are often sessions on how to use a piece of technology in teaching as a useful tool in information access, but rarely on what to do after the button has been pushed and the result is 7,254 web sites available on your topic.

- Few major authors in educational pedagogy take note that the world of information has changed. For example, a major book[1] on building background knowledge never recognized the new information world.

- Major movements, such as Understanding by Design,[2] have great pedagogical ideas. However, we must apply those ideas to the information-rich world where they would flourish.

To educators in information professions, the dismissal of the new world of information has been mystifying on one hand and saddening on another. It is as if the world changed but no one noticed.

Yes, but isn't the movement into this new information and technology environment implied by all the major educational thinkers?

Perhaps. But we are unconvinced that the main players really have considered the major shift in information and really have taken it seriously. We rarely see instructional models that help teachers and students live and work in anything other than a textbook environment or a contained classroom with perhaps a single connection to the Internet or a couple of hundred books in the classroom library. Do a survey yourself. Check any of your popular books in education and look in the index for words like *information, information literature, information skills, library, librarian, databases, Internet,* or any techniques that work only in high quality information environments.

So What?

There is a presumption that there is a library in the school with rich resources; that there are databases and high quality Internet sites selected for student use; and that these resources are available anywhere and at any time. In today's frantic funding scene, anything taken for granted is likely to disappear. Many school libraries have a very small budget and have not kept up in technology. Often, if a professional retires or moves, a clerk replaces the professional, as if a person with little educational background could build the kind of information system students and teachers desperately need.

Yes, there are stereotypical librarians who protect their ancient books and act like a dictator in their space. Yes, there are tech directors who act like demigods keeping everyone off their networks lest they crash. Those folks need to change or leave. Our point is that without competent professionals who are teachers in both libraries and tech

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1 Building Background Knowledge for Academic Achievement: Research on What Works in Schools. Robert J. Marzano.

2 Fill in

centers, teachers and kids will suffer. In other words, we ignore libraries and tech centers at our own peril. Teachers and administrators who have experienced super school libraries and technology programs have experienced the great lift that quality programs have – non only on the collaborative design of teaching, but the impact these programs have on student learning. It is not surprising that quality school library media programs keep turning up in research studies as making a difference in academic achievement.[3] For those who have not experienced these types of programs, search out and visit several to discover why they make the difference they claim. It's the same everywhere in education. It's people who make the difference.

Again, what's your point?

The premise of this book is that there are three teaching environments, which are all very different:

1. Teaching when there is nothing other than the teacher's knowledge;
2. Teaching in a textbook/lecture world;
3. Teaching in an information-rich and technology-rich environment.

The design of a learning experience and what works in each of the three environments is quite different. Our point is that all pedagogy must be redesigned or reinvented to work as the information and technology environment evolves. This will take good librarians and technology specialists to get the job done. Take the case of differentiation of instruction, a concept that is very popular. How can a teacher hope to meet the needs of every child in the classroom when only a few can understand the textbook? Do we assume the teacher is resourceful enough to compensate for a failing information system? Are we forced back into the teaching-by-rote era? Do we assume that the lecture will compensate for the tough textbook? Do we assume that children who are just learning English will understand the lecture? Do we just say to the teacher, "Speak more slowly and loudly and they will understand?" We hardly think any of those suggestions are realistic in a world expecting every child to succeed.

So what do you propose?

First, lets get a few things straight.

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3 Since 1993, at least fifteen state studies have been conducted identifying quality school library media programs as one component contributing to academic achievement. Many of the studies have been conducted by Ketih Curry Lance in states such as Colorado, Minnesota, Iowa, Illinois, Pennsylvania, Alaska, etc. For a complete list of the studies and their findings, visit http://www.davidvl.org and look for the research link. Or visit the Colorado State Library web site for an additional bibliography of research studies on the impact of school libraries.

- A well-prepared lecture is hard to beat as a teaching technique, although a certain percentage of the students will either ignore it, not understand it, misinterpret it, or try to copy it all down since they expect to be tested on it.

- Textbooks and their supplemental materials are often useful outlines of what should be known and help teachers to structure learning over time. However, they are bloated, too expensive, and usually written for a different audience than "my class."

- Teaching in an information-rich and technology-rich environment is quite different than the textbook/lecture strategy, BUT IT IS THE ONLY HOPE IF ALL STUDENTS ARE GOING TO BE GIVEN AN EQUAL SHAKE.

We propose that each of the three major information environments be recognized by the major instructional designers in education and that teachers be trained to operate in each of these different worlds. Teachers should be taught to recognize the shift in information and technology environments and gain a repertoire of teaching and learning strategies that work best in each. This is no different than the flexibility we expect teachers to master as they confront different learning styles, different student sophistication levels, and the myriad rules and regulations for handling all types of students in an educational organization. It is another dimension to their flexibility, but it is an important one.

But isn't an information-rich and technology-rich environment expensive?

Yes. But compared to the expenditures every year on textbooks, it is very reasonable. Currently, spending for library materials and databases around the U.S. average around $20 per student per year with states like California averaging about $1.00 and others spending upwards of $30.00 Expenditures on technology hardware vary widely from state to state and district to district. Initially, spending for technology was substantial, but as time has passed and budgets have shrunk, many districts have cut back dramatically. It is certain that many administrators often budget for hardware and educational software, but skimp on the information to go on the wires. Thus, librarians and technology specialists struggle to provide as much quality information as they can with limited funds.

Quality collections of materials can be maintained under $25 a year per student. What a bargain! For the price of a single hardback book in a typical bookstore, students are beginning to taste a quality information system. We often give librarians the guideline that one book a year per student will maintain a collection, but the price of two books per year will be needed to keep collections of print, multimedia, and digital collections fresh. If we were to provide equitable spending for textbooks and the information system we are describing, spending for library budgets would have to quadruple in most districts and be increased a hundred fold in a state like California (more about this when we discuss our vision of the future).

More and more information—particularly databases and online periodicals—require schools to treat information as a utility. That is, if the bill is not paid, access to the database is cut off. School districts are going to have to learn that paying the information bill is akin to paying the electric bill. No power, no school. No information, no school. To turn off both is to retreat quickly into the 19th century—hardly a place where we'd like our 21st century children, who are supposed to be the best and brightest in the world, to be educated.

But even if we fund the information-rich environment, aren't kids lost in such a vast space?

Admittedly, students can surf, fiddle, and waste a great deal of time paddling around in information space so that in a normal hour of research they would not really get anything done except wandering.

The librarians of the nation have come up with a model to help students and teachers navigate a broad information space. Their strategy is to teach information literature and advocate that students who use the real world of information should be information literate. Information literacy is defined not only as finding information, but also as evaluating it very carefully before using it to build knowledge or do a task. Whereas librarians traditionally concentrated on helping patrons find information, their task has now switched to helping patrons judge, analyze, and use information.

We can all probably remember the days when we were doing research in the library and used the *Reader's Guide to Periodical Literature* to help us find magazines. We would laboriously copy out 20 citations, take them to the magazine room, and hope to find at least one that we could cite. Today, we type in a search term and are overwhelmed with information on our topic. It requires information literature skills to know what to use and whether it is worth using at all.

Librarians often teach the research process adapted from the scientific method. Figure 3 below is a generic model of the process librarians teach as students confront a problem in an information-rich environment.

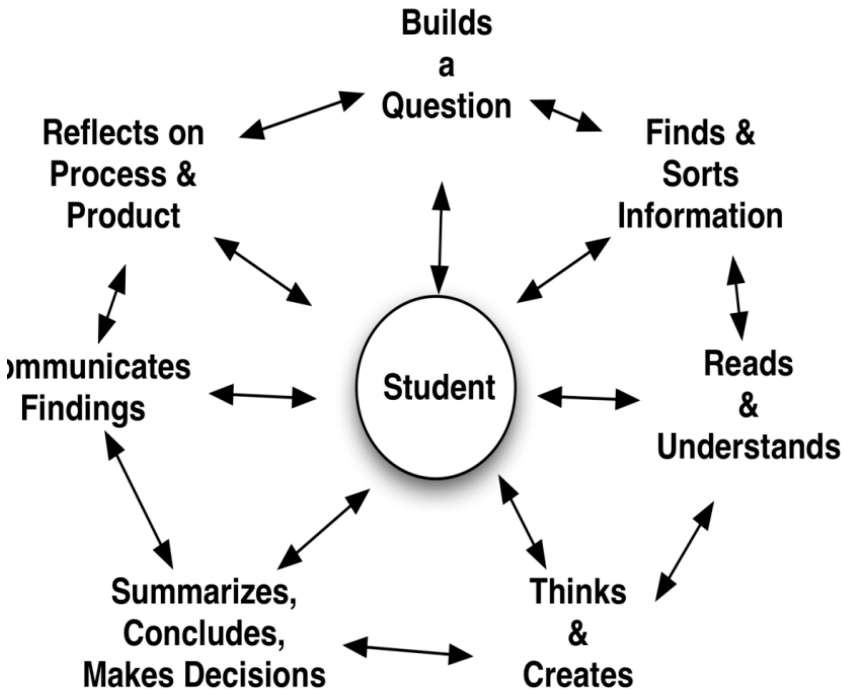

Figure 3: The information literacy process.

If you ask any librarian about information literacy and what they are trying to accomplish above and beyond the old library skills (of learning the Dewey Decimal System and reading catalog cards), expect an earful.

Enough of that! What are the 15 models for teaching and learning that are spoken about in the title of the book?

We created 15 models to teach and learn when information abounds based on our long experience with learners and study of many research reports spanning education, library science, and technology. They are presented in the appendix to this chapter.

We divided these models into three categories:

1. Appetizers
2. The Main Course
3. Dessert

Appetizers are fairly simple models and can be used easily within many other teaching strategies. The main course models might be the entire structure of a total learning experience. Dessert challenges the teacher to use all the models creatively as the occasion presents itself.

The models do not work well in an information-poor environment but are structured in such a way that students will have lots of choices in information, multimedia, and human resources.

Here are our assumptions about the models as a whole:

- The models do not ask teachers to discard any effective teaching technique that already works.

- Each model requires the student not just to cut, clip, or extract information from a wide variety of sources, but to use higher-level thinking strategies to accomplish the learning objective.

- The models demand that information and technology gurus (often known as librarians and technology specialists) collaborate with the teacher in designing learning.

- The models require every "bird unit" to be redesigned. Redesign is often a simple but very important tweak.

- The models require every school give more than lip service to the creation of a high-quality information system usually known as the library—but a library of very different proportions to the old one that stored a few tattered volumes and was visited once a week for a story and a "library lesson." Such new libraries cost a substantial amount of money and not only have print materials, but also have the digital school library system that is available 24 hours a day, seven days a week from anywhere in the world a student happens to be.

- The models assume that the librarian and/or the technology specialist do more than just keep the wires or sort the books. They are either willing to participate in designing quality learning experiences, or their jobs are shifted to another spot in education.

- Not all learning experiences need to take place in an information-rich environment. It is quite appropriate to rely totally on a teacher's experience or totally on a textbook/lecture format at times, but never as a steady diet. Variety is the spice of education and will likely lift boredom and increase motivation as expectations for learning are raised.

- Just because the information environment expands, the time for teaching a topic need not expand. It may, as students get immersed in a fascinating learning experience, but not always.

- None of the models are mandated in their exact form. Rather, they should be used with other creative ideas and judged on their impact on the amount learned in the time available.

- None of the models cast the total burden for teaching on a single individual, but presume that both the teacher and partner specialists be in the saddle to cut the teacher/pupil ratio at least in half. The notion is that two heads are better than one. All models presume collaborative planning, team teaching and joint assessment of the learning.

Perhaps a few examples would help here.

As you scan the list of models below in table 2 and read the tweaks suggested, you might catch a brief glimpse of what we are talking about.

Table 2: Examples of Higher Level Bird Units

Model	Sample approaches for information-rich environments
APPETIZERS	
1.Background to Question Model	Birding with digital cameras. Examine feathers under a microscope. Visit a bird sanctuary, museum, or art gallery.
2.Sensemaking Model	Research migration and create visual maps, charts, or graphs. Discover things that birds can do that are replicated in technology, and create a visual display (e.g. beaks-nutcracker or straw, claws-hooks or vice grip).
3. Read, View, Listen Model	Explore books, videos, or websites to discover: What are birds used for? What uses are harmful? What do legends and myths tell us about birds in different cultures? Read stories having a wise old owl character and discover the common characteristics.
4. Advice to Action Model	Consult expert advice on how to attract birds to the schoolyard and your own backyard.
5. Compare & Contrast Model	Research and compare: swamp birds and desert birds, nocturnal birds and diurnal birds, woodpeckers and hummingbirds, two birds with webbed feet such as a Canada goose and a puffin..., the structure and function of wings of birds and airplanes, or pigeons around the world.

THE MAIN COURSE	
6. Concept Jigsaw Model	How has art been influenced by birds? Examine painting, sculpture, plays, ballet, music, movies, or poetry.
7. Problems/ Possibilities Jigsaw Puzzle Model	Which birds are threatened or endangered? How can we protect them?
8. Matrix Model	Are all oviparous animals birds?
9. Timeline Model	Explore the evolution of birds. Document the history of ornithology. Hatch eggs in the classroom and document the process. Show location of a migratory bird, such as a hummingbird, during the period of a year.
10. History & Mystery Model	'Winged Man" How were early flying machines influenced by birds?
11. Take a Position Model	Do we need an international agreement to conserve and manage bird populations?
12. Recreate Model	Role-play waterfowl migrating from their nesting habitat in the far North to their wintering grounds in the South.
13. Re-invent a Better Way Model	Build a birdhouse or birdbath, paper airplane, or a peanut birdfeeder that squirrels can't eat from.
14. The Quest	Do a major study of birds whether in the form of an I-Search Paper, a formal research paper, a major WebQuest, or other sizeable research project.
DESSERT	
15. Mix It Up	Combine any of the models above creatively

What are the techniques that would help teachers the most in applying these models?

In many instances, the tweaks applied to create higher-level learning experiences are not just the groupings or structure of the model but the ability to ask good questions. A good question will be interesting and relevant to the students and will sustain that interest or curiosity throughout the learning experience. This is critical, since all the models will require the students to think harder and do more work than they would during a passive unit. A good question will not be able to be answered by cutting and clippings answers from an information source. A student will not be able to find their work already done for them from some website or reference book. The question will cause them to combine various information sources, think about the information, and build a fresh perspective,

idea, or reject everything they have encountered and be truly creative. For ideas on how to build better questions consult Jamie McKenzie's work at http://www.fno.org/sept96/questions.html

A second technique that will boost the likelihood of success is the teaching of group dynamics during the unit. All the 15 models can begin with individuals, but invariably end up in some kind of grouping as information is pooled, analyzed, and synthesized. Since teams or groups are so common in our workforce in laboratories, commercial enterprises, or many organizational structures, teaching group skills is a life skill that may as well be mastered early.

But are the models based on research?

It is true that the development of the models rests squarely on a body of professional experience. The authors have a combined experience of over 75 years in the United States and Canada. Together they have worked with teachers at all grade levels and in all disciplines; they have worked with librarians and technology directors across the continent; and they have spoken to educators at professional conferences and workshops in every province of Canada and in almost every state of the U.S.

But beyond that experience comes the support of research studies across the field of education. One of the authors conducted an extensive review of the literature of information literacy across the world[4]. All the models are based in research reviews done by Robert J. Marzano,[5] and others in the Understanding by Design movement.[6] We have also used reviews of research in technology[7] and reviews of reading research done by Krashen and McQuillan.[8] The work here has been affected by much of the literature in higher-level thinking, creativity, and the work in inquiry and constructivist education.[9] This is true because the best ideas in education today link into an information-rich environment.

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4 Loertscher, David V. and Blanche Woolls. Information Literacy: a Review of the Research. 2nd ed. Hi Willow Research & Publishing, 2002.

5 Our favorite works of Robert Marzano include his What Works Series published by ASCD. Individual titles are listed in the resources section at the end of this book.

6 Wiggins & McTigue. Understanding By Design. ASCD, 1999. And Understanding By Design Handbook. ASCD, 2004.

7 Center for Applied Research in Educational Technology (CARET) at: http://caret.iste.org/

8 Krashen, Stephen. The Power of Reading. 2nd ed. Libraries Unlimited, 2004.

9 See our list of favorite titles in the resources section at the end of the book.

Much of the skills-based approach to education is not a part of our foundation because the best of those techniques work better in a predominantly closed information system. We don't see that the practice of math facts—whether in the dirt with a stick, on the chalkboard, using a set of flash cards, or being presented with problems on the computer—is any different. The information space is equally narrow and appropriate for drill and practice. It makes little difference whether early learning of the piano is done on a $20,000 Steinway grand piano or on a $30 electronic keyboard. Thus, we have not been impressed with the body of technology research that has tried to compare learning the same facts, operations, or ideas via computer, written text, oral lecture, or any other comparative medium. Those studies have generally come out with "no significant differences" and we have not been surprised. It is not so important that technology delivers the same information that is in a book or a magazine; it is the fact that technology can deliver information in a myriad of different ways, in different sophistication levels, in varying genres, and with differentiation as its key strength. We do admire the efforts of a number of national organizations to promote technology in ways that truly enhance learning.[10]

If you authors had your wish, what would a likely scenario be for education in an information-rich and technology-rich environment?

Since you asked, here is a picture of a restructured school that we think would work.

1. Start with an information ticket. For every day a student is in school, the federal government would supply a $5.00 information ticket. Thus, if a student moved from school to school, the current school would claim the money. If a child were home schooled, a public library or a school that agreed to provide the information support might claim the ticket. In no case would a single commercial entity be allowed to claim the information ticket (although they would be happy to do so).
    a. A $5.00 bill per day would pay for the following information services:
        i. $2.00 - All textbooks and accompanying consumables selected locally.
        ii. $1.00 - A library, both print and digital, including online databases, groups of carefully selected web sites, and multimedia selected locally. The digital portion would be available 24/7 and from any location worldwide.

10 Our favorites include: the Partnership for 21st Century Skills at http://21stcenturyskills.org/; The George Lucas Educational Foundation (GLEF) that publishes Edutopia at http://www.glef.org/; The various standards documents published by the International Society for Technology in Education (ISTE) at http://www.iste.org/ and the enGauge 21st Century Skills project at http://www.ncrel.org/engauge/skills/skills.htm

iii. $2.00 - A connection device (perhaps a cross between a PDA and a notebook computer and one that would last two years and then exchanged for an upgraded model).

The ticket would not pay for additional equipment, the wireless network system itself, or the salaries of the persons administering the system. In other words, like a utility such as gas or electric, the information system would be a basic component of the education system rather than an add-on as at present. Benevolent funding has never worked and never will.

2. Create an educational pod of four teachers and their normal quota of students. This group of four would have the following structure

    a. A knowledge team leader qualified as an information/technology/ curriculum/instructional designer

    b. Three regularly-credentialed teachers

Such a team could be generalists, as elementary teachers are, and would have the same children for several years. Or, the team could be four specialists such as social studies, science, math, or fine arts, and students would rotate among the various pods of specialists.

The focus would be on the knowledge team leader who would spend approximately half the day in planning and assessment and half the day teaming with one or the entire group on educational units.

The knowledge team leader would have the following qualifications and training:

a. Credentials as a master teacher before being allowed to apply for the job.

b. Advanced coursework in instructional and curriculum design.

c. Competence in information—selection, acquisition, use, and the teaching of information literacy from library and information science.

d. Expertise in the use of technology as an educational tool

e. Management and leadership competencies.

In Summary

We can't help but agree with the Committee on Developments in the Science of Learning in their expanded edition of *How People Learn*:[11]

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11 How People Learn: Brain, Mind, Experience, and School. Expanded Edition. National Academic Press, 2004 Created by the Committee on Developments in the Science of Learning, Commission on Behavioral and Social Sciences and Education, National Research Council.

> *More than ever, the sheer magnitude of human knowledge renders its coverage by education as an impossibility; rather, the goal of education is better conceived as helping students develop the intellectual tools and learning strategies needed to acquire the knowledge that allows people to think productively about history, science and technology, social phenomena, mathematics and the arts. Fundamental understanding about subjects including how to frame and ask meaningful questions about various subject areas, contributes to individuals' more basic understanding of basic principles learning that can assist them in becoming self-sustaining life-long learners (p.5).*

We believe that the models in this book provide effective strategies for teaching and learning in an information-rich environment rather than being crushed by information overload. Feedback to the authors is appreciated and can be addressed to David V. Loertscher at davidl@slis.sjsu.edu

A Few Notes for Librarians

Rivaling the "heartbreak of psoriasis" is the amassing of books, digital information, and multimedia and then having few customers. For half a century, school librarians have begged, cajoled, and smooth-talked monies to build resources for teaching and learning. And national standards have placed collaborative teaching and learning as a top priority in boosting achievement. The potential to contribute to teaching and learning has never been greater.

As the authors travel about North America, the number one complaint we hear from school librarians is that teachers are either unwilling or too busy to collaborate. And when they do, the "bird unit" ideas predominate. Our message in a world interested only in the bottom line of scores has been that the time has come to "strut our stuff."

Teaching and learning in an information-rich and technology-rich environment holds a great deal of promise because this environment is the real world of the 21st century. Armed with that knowledge, the authors have created models to replace the annoying and low-level library activities that are all too commonplace across the continent.

It is one thing to ban bird units from the library; it is quite another to have exciting alternatives that truly boost understanding and achievement. Teachers often avoid libraries because of time constraints, but they also fear that time spent doing research or encountering anything except what is tested will negatively affect scores. Furthermore, many librarians find that the time they have to collaborate is being cut as clerical help diminishes or as jobs are cut from full to part time.

The concern of administrators to economize by eliminating professional librarians but keeping the library open through clericals or volunteers presumes that access alone makes the difference. "If we just keep the computers plugged in, the books on the shelf, and the door open, it is sufficient." If this reasoning were used for the management of the

principal's office or the classroom, where would the school be? The professionals in the library play as significant a role as principals and teachers.

The authors are often asked which is better: "to have a teacher bring a class to the library doing low-level learning activities or not come at all?" We recommend the latter as shocking as that may seem. Our advice to every librarian is to link arms with principals and forward-thinking teachers in a resolve to maximize the contribution that the library makes to achievement. There is no time to allow nonsense or vacation time in the library. Librarians cannot claim a contribution to teaching and learning unless literacy and understanding are being built day in and day out.

The models presented in this book are, in reality, tweaks to good teaching practices. Their message is not that everything done previously is wrong and that our models are the only right way. Rather, they are that little extra boost that can push a learning activity to successful completion—to win the race, not merely participate in it. Experience with the models indicates that librarians go through two stages: first, the slavish application of a particular model to build repertoire. Second, librarians become creative at combining parts of models as they watch and gauge student learning, motivation, and excitement for the library.

It is impossible to improve or fine-tune "the dreaded worksheet" exercise. Copying facts from one location to another and passing them in or merely regurgitating them is counterproductive no matter how it is framed or implemented. It matters not whether the fact has been copied with a pencil or cut and pasted by computer. It is all the same nonsense.

For doubters, we recommend viewing the video "We are Information Literate!" available from LMC Source at http://www.lmcsource.com. When first graders experience high-level learning experiences and then are interviewed as fifth graders, what differences can a single learning experience replicated at each grade level make? As authors, we are convinced that given whatever time the librarian has to collaborate, it is more important to do a few model learning experiences than many mediocre ones.

Because excellence is its own reward, the challenge of experimenting, creating, honing, tweaking, and elevating learning experiences in libraries is worth accepting. And, it's all part of earning our keep and perhaps an extreme makeover of what libraries contribute to learning.[12]

David Loertscher is a professor of Library and Information Science in the College of Applied Sciences and Art s at San Jose State University. He is an editor for Teacher Librarian, a past president of the American Association of School Librarians, and an international consultant.

12 See: Loertscher, David V. "Extreme Makeover." School Library Journal, November, 2004.

Background to Question Model

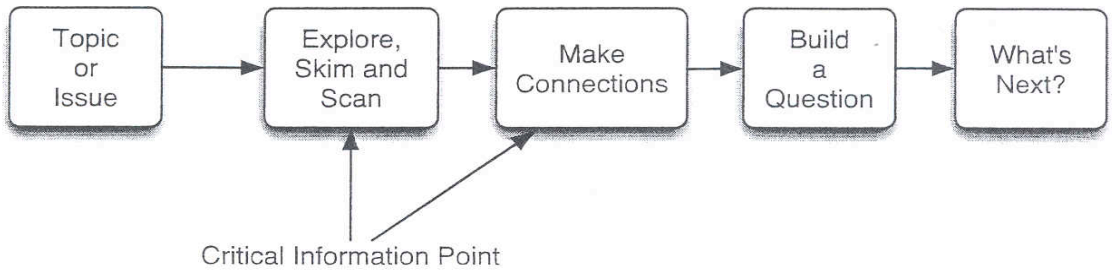
Curriculum Topic and Objectives

Background Building Activity
- Read
- View
- Listen
- Survey
- More is better

Connect New and Old Learning

Build a Question
- Narrow and focus a topic
- Build a quest

Plan a Project
- Goals
- Timeline
- Resources
- Strategies



Why This Model?

- Compensate for uneven prior knowledge
- Use when prior knowledge is skimpy
- Help learners build engaging questions when they seem to lack interest
- Provide an opportunity for a "topic to select a learner"
- Use when the textbook is insufficient
- Help learners narrow a topic when struggling with generalities
- Turn a library orientation into an exploration

Possible Topics:

- Environmental issues
- Genetics
- Health and safety issues
- Political ideologies
- Types of music
- Science fair projects
- Pet care and needs
- Media influence on behavior
- Marine biology
- Rain forests
- Middle Ages
- Middle East
- Early settlers
- Ecosystems

Critical Information Literacy Skills*

- Explore a Topic, K&Z, p. 4
- Search Strategies, K&Z p. 24
- Locate Resources, K&Z p 26
- Select Relevant Data, K&Z p. 62
- Skim, Scan, Consider, K&Z, p. 32
- Make Connections, K&Z p. 116
- Reflect, Transfer, Apply, K&Z p. 166
- Develop Questions, K&Z p. 12
- Define a Research Topic, K&Z p. 8

* Koechlin, Carol and Sandi Zwaan. *Build Your Own Information Literate School.* Hi Willow, 2003

Think Model #2

Sensemaking Model
Visualizing / Re-Conceptualizing

Concepts, ideas, or data either not understood or misunderstood

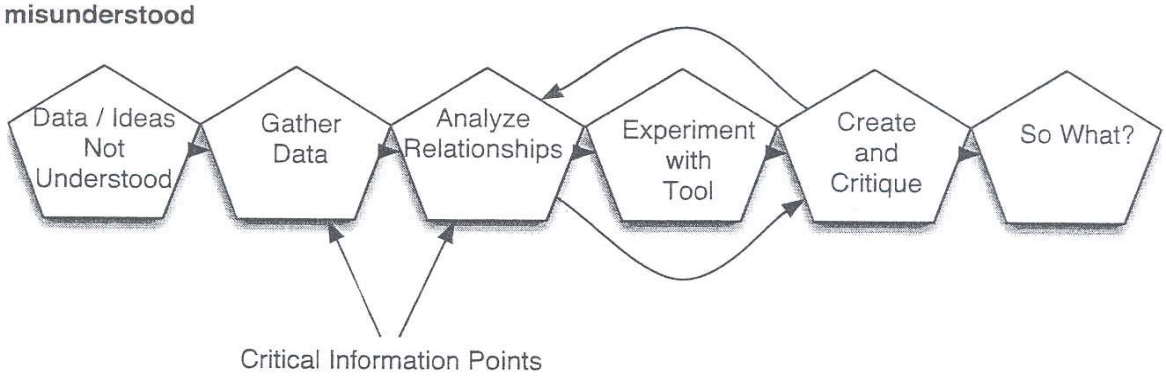
Collect & validate data

Find Connections:
- Sort
- Classify
- Patterns
- Missing Data?

Use Graphic Tools to Assist In Visualization

Create
- Re-Work
- Re-Think

Share and Defend New Understanding



Why Use This Model?

- Take advantage of the addage that a picture is worth a thousand words
- Take advantage of learners who have high visualization abilities
- Add one more dimension to text and explanations
- Use when data cannot be understood in their raw form
- Try several visualizations of the same ideas
- Particularly useful for concepts where misconceptions abound

Possible Topics:

- Popular misconceptions
- Data in any discipline
- Large amounts of data
- Population patterns
- All types of maps
- Ideas and their connections
- Cause / Effect
- Environmental / social issues
- Difficult concepts

Critical Information Literacy Skills*

- Evaluate Resources, K&Z p.34
- Use Organizers, K&Z p. 90
- Sort, K&Z p. 94
- Compare, K&Z p. 98
- Classify, K&Z p. 102

* Koechlin, Carol and Sandi Zwaan. *Build Your Own Information Literate School.* Hi Willow, 2003.

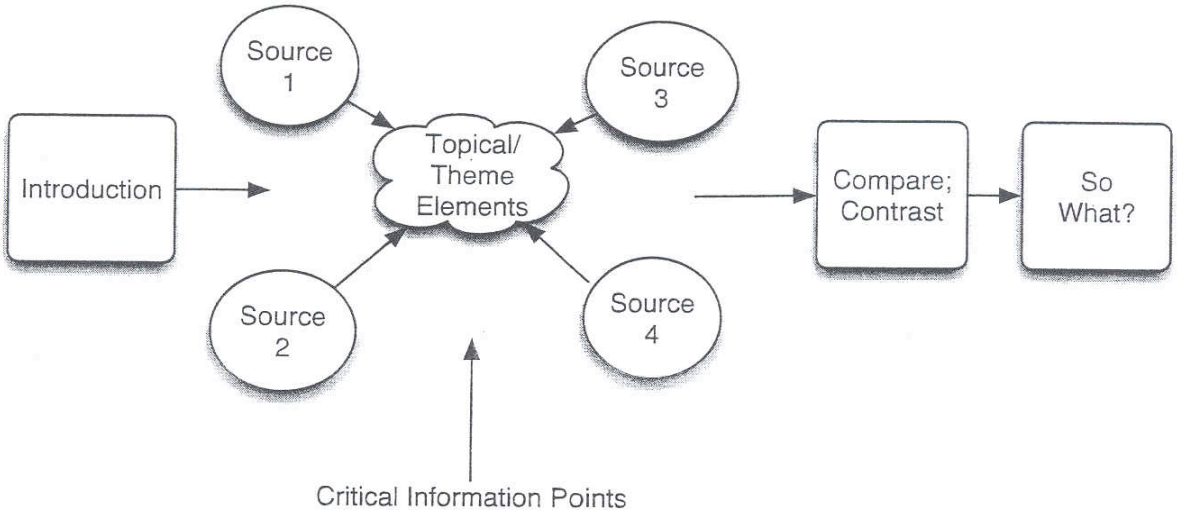
The Read, View, Listen Model

Introduce the topic(s) to be explored along with Objectives

Groups or individuals read, view or listen to many or several items on topic

Compare/ contrast items on theme elements

Summary/ synthesis Activity



Why Use This Model?

- Experience many literary/ written works rather than a single text
- Allow all skill levels to concentrate on the theme rather than the difficulty of the text
- Concept map the big ideas across texts
- See big picture across cultures, authors, governments, time periods, ideas
- When you can't afford a textbook but have a library

Possible Topics:

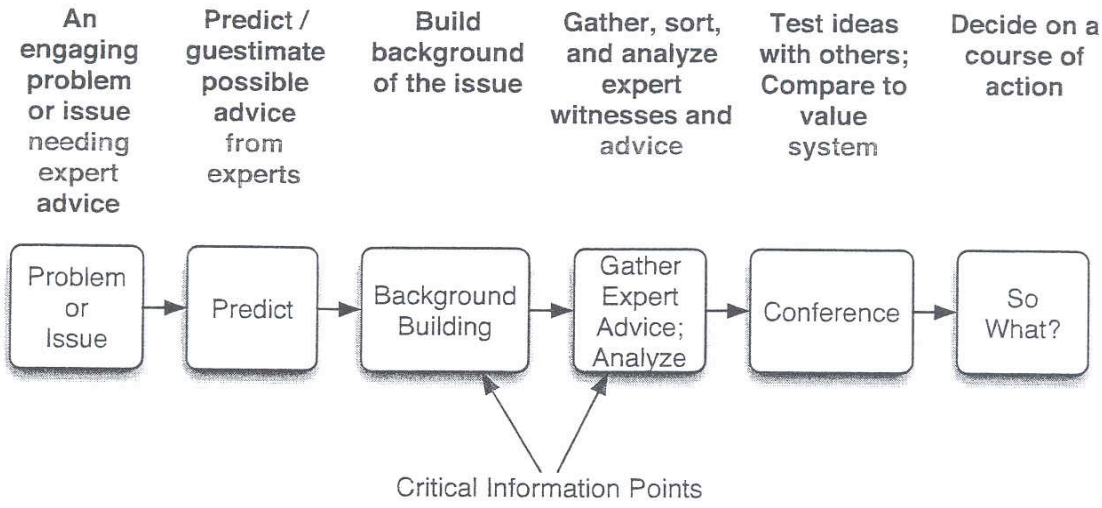
- Literary themes across books
- Similar literary themes across cultures
- Causes of wars across combatants
- News reporting across international newspapers & TV
- Teen angst across teen novels
- Comparison of cultures around the world at the same time period
- Lives of rich and poor - same time, same locale

Critical Information Literacy Skills*

- Pre-Reading Strategies, K&Z p. 52
- Skim, Scan, and Consider, K&Z p. 32
- Actively Read, View and Listen, K&Z p. 56
- Read Pictures, K&Z p. 70
- Compare, K&Z p. 98

*Koechlin, Carol and Sandi Zwaan. *Build Your Own Information Literate school.* Hi Willow, 2003

Advice to Action Model



Why This Model?

- To solve real problems
- Judge between good and poor advice
- Affect behavior: judging the difference between personal wishes and prudence
- Understanding the consequences of taking advice
- To understand how historical events were shaped by advice both good and poor
- Making life-saving decisions

Possible Topics:

- Healthy lifestyles
- Selecting a college or career
- Succeeding in school
- Preventing, controlling forest fires
- Urban sprawl
- Safe drinking water Vending machines in schools
- School fundraising initiatives
- School safety issues
- Helping the homeless

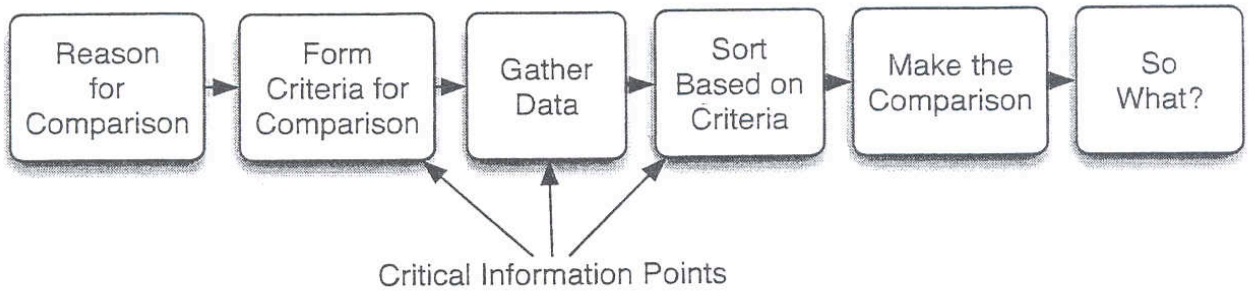
Critical Information Literacy Skills:

- Use Primary Sources, K&Z p. 46
- Evaluate Resources, K&Z p. 34
- Interpret, Infer, Predict, K&Z p. 130
- Understanding Perspective, K&Z p. 136
- Cause and Effect, K&Z p. 120

* Koechlin, Carol and Sandi Zwaan. *Build Your Own Information Literate School.* Hi Willow, 2003

Compare and Contrast Model

Identify purpose and items to be compared	Brainstorm and select the criteria for comparison	Use quality information sources; Gather data	Do the sort with tech assists if needed	Analyze the result	See the big picture



Why Use This Model?

- A much-researched and powerful teaching technique
- Stress quality information to achieve an accurate comparison
- Teaches reason over subjectivity
- Requires tough thinking
- Becomes the basis of many other teaching techniques with large or small data sets, facts, or ideas

Possible Topics:

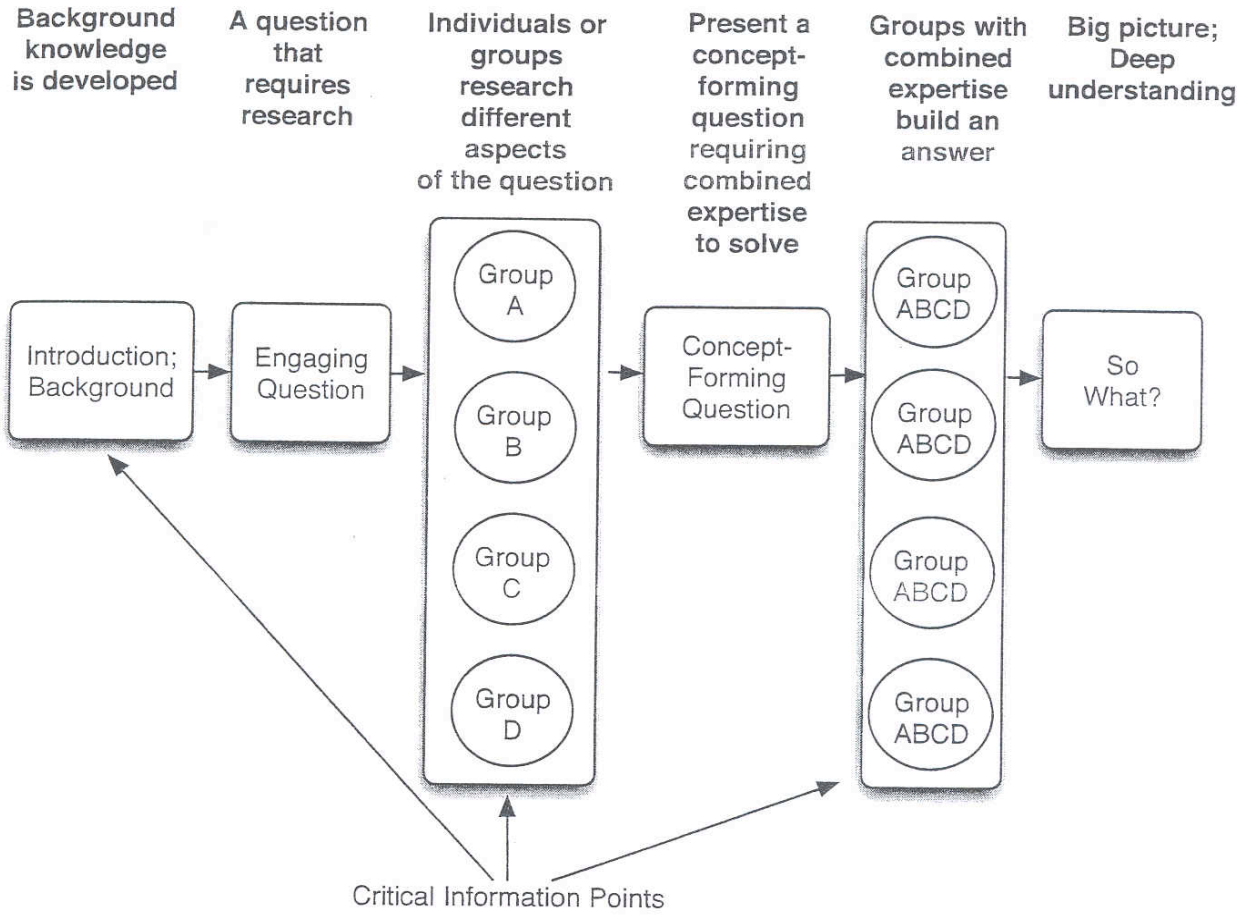
- Ideas
- Events
- Persons
- Cultures
- Governments
- Life skills
- Seasons
- Animals
- Plants
- Music
- Literature

Critical Information Literacy Skills*

- Use Primary Sources, K&Z p.46
- Evaluate Resources, K&Z, p. 34
- Note Making, K&Z p. 76
- Sort, K&Z p. 94
- Compare, K&Z p.98
- Synthesize, K&Z p. 145

*Koechlin, Carol and Sandi Zwaan. *Build Your Own Information Literate School.* Hi Willow, 2003.

The Concept Jigsaw Puzzle Model



Why This Model?

- To develop deep understanding rather than surface knowledge
- To develop group skills
- Two heads are better than one
- A prototype of the real world of business and industry
- To stimulate each learner into making a contribution
- Use to introduce lots of material quickly

Possible Topics:

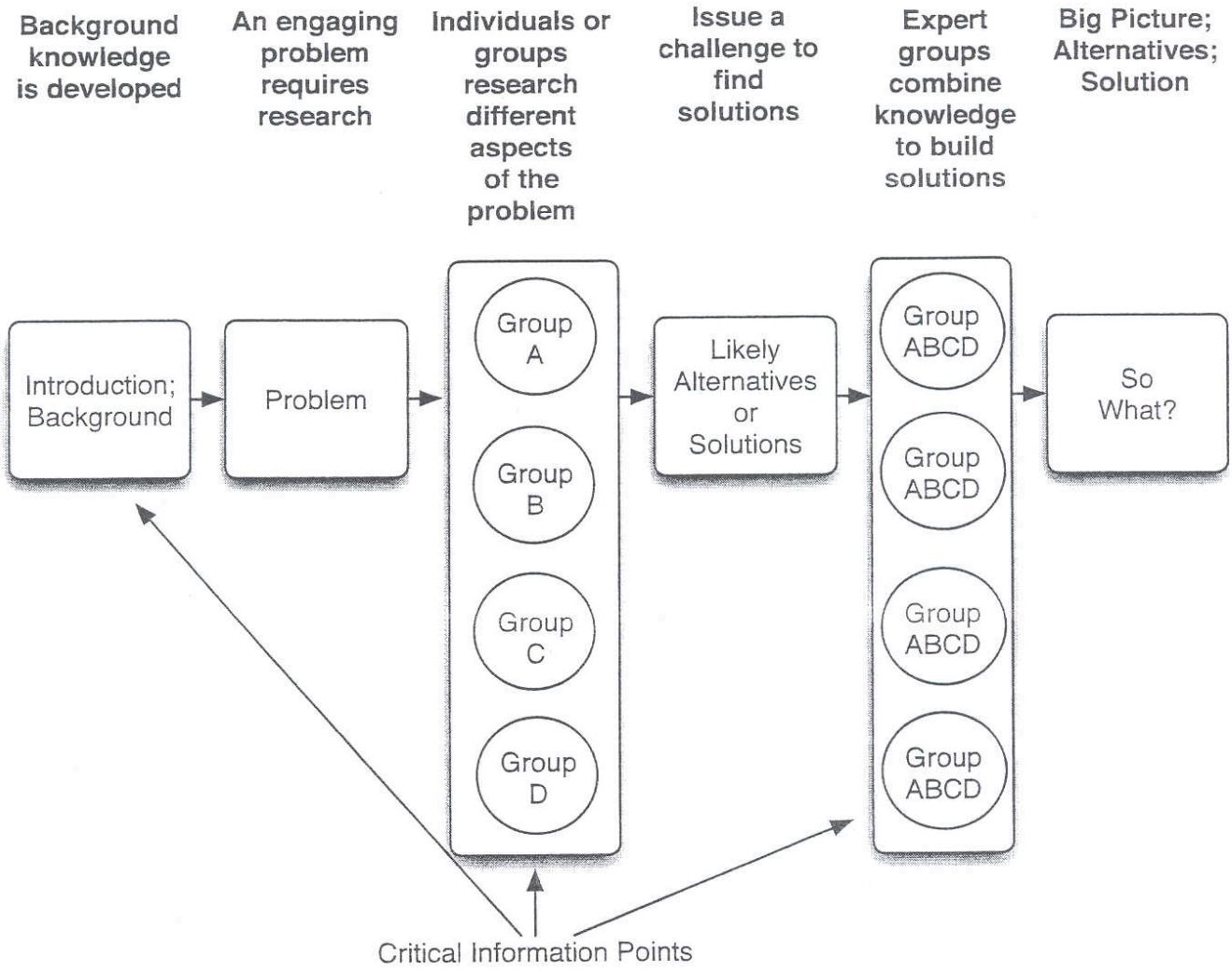
- Persons
- Places
- Things
- Events
- Ideas
- Movements

Critical Information Literacy Skills*

- Explore a Topic, K&Z p. 4
- Develop Questions, K&Z p. 12
- Locate Resources, K&Z p. 28
- Evaluate Resources, K&Z p. 34
- Collaborate, K&Z p. 140

* Koechlin, Carol and Sandi Zwaan. *Build Your Own Information Literate School.* Hi Willow, 2003

The Problems/Possibilities Jigsaw Puzzle Model



Why This Model?

- To learn real-world problem-solivng skills
- Build group problem-solving skills
- A prototype of the real world of business and industry
- To stimulate each learner into making a contribution
- To encourage investigation, determination, and perserverence

Possible Topics:

- Problems encountered at home, school, community, or nation
- Society problems such as poverty or health care
- Real problems created from learning experiences or projects

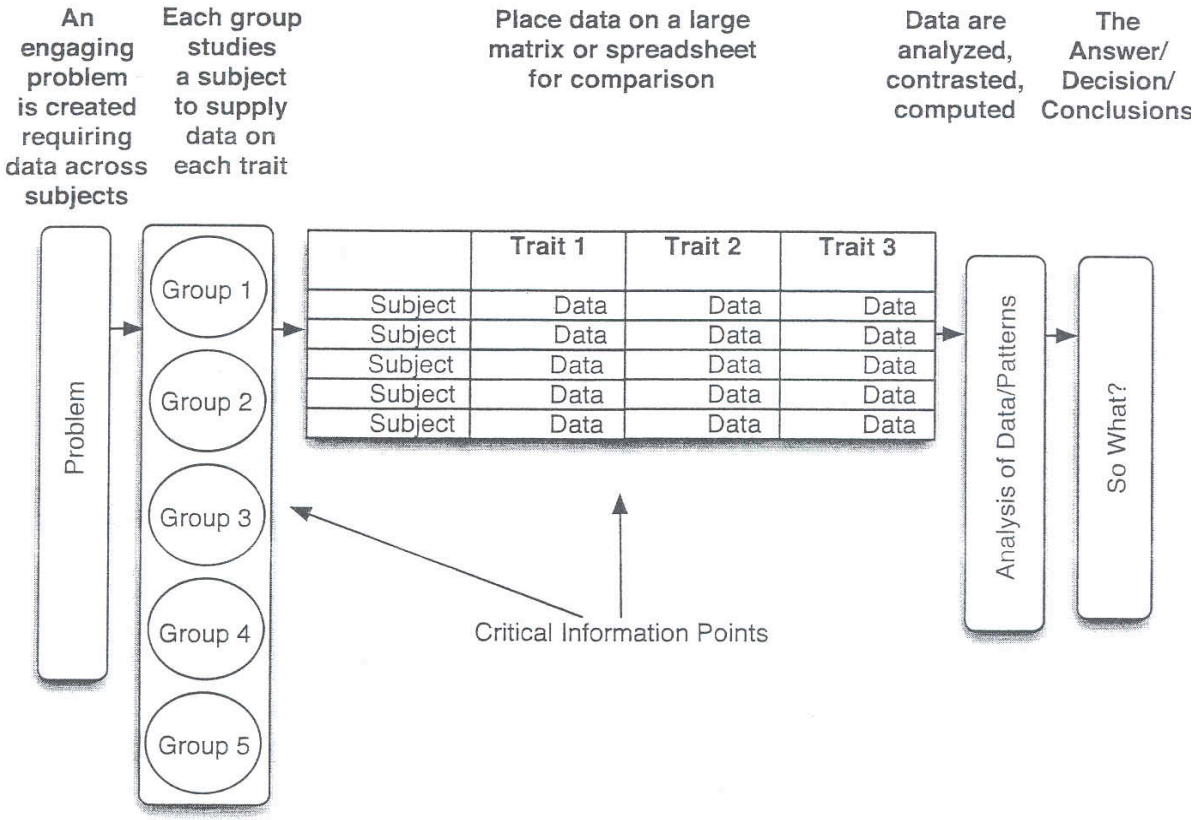
Critical Information Literacy Skills*

- Select Relevant Data, K&Z p. 54
- Note Making, K&Z p. 76
- Collaborate, K&Z p. 140
- Make Connections, K&Z p.116
- Synthesize, K&Z p. 145

* Koechlin, Carol and Sandi Zwaan. *Build Your Own Information Literate School.* Hi Willow, 2003

Think Model #8

The Matrix Model



Why This Model?

- To promote accurate data gathering
- Organizing data for better decisionmaking or understanding
- Facilitating a look at patterns and trends
- Seeing the dangers of bad data in any cell
- Teaching complex issues; solving complex problems

determination, and perserverence

Possible Topics:

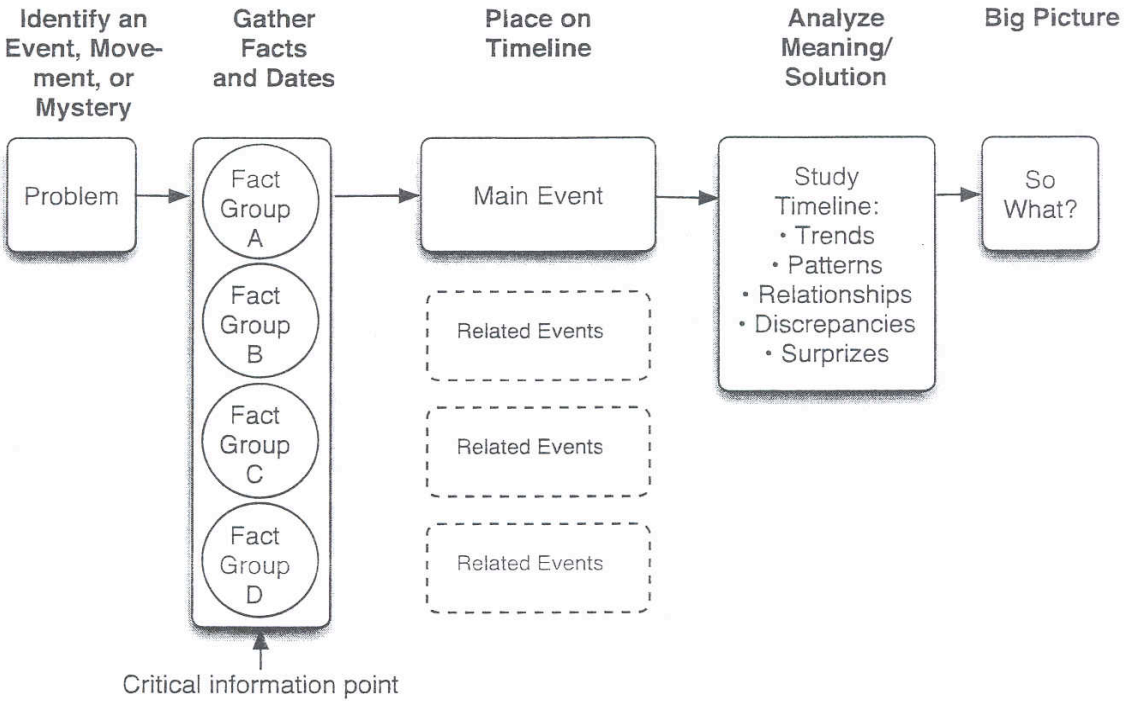
- Pick a pet for the classroom
- Are there weapons of mass destruction?
- Comparison of possible new highways
- Comparison of expert opinions about a topic
- Comparison of candidates for office
- Comparing topics of interest

Critical Information Literacy Skills*

- Evaluate Resources, K&Z p. 34
- Select Relevant Data, K&Z p. 62
- Legal and Ethical Use of Information and Ideas, K&Z p. 82
- Share and Use, K&Z p. 156
- Reflect, Transfer and Apply, K&Z p. 166

* Koechlin, Carol and Sandi Zwaan. *Build Your Own Information Literate School.* Hi Willow, 2003

The Timeline Model



Why this Model?

- Show changes over time
- Determine why something developed the way it did
- Understand how inaccurate information will distort the analysis of sequencing
- Make comparisons of the past and the present
- Put some events in a larger perspective
- Trace the background to explore cause and effect
- Understand sequence
- Visualize sequential patterns

Possible Topics:

- Chart a political election
- Study a catastrophic event
- Compare various disciplines during a time period
- Reconstruct the events of a crime or event
- Chart the Middle East conflict
- Study the rise of terrorism as warfare
- Chart the plot of a novel or story
- Study the structure of a symphony
- Put a a period of art into its environment
- Study what made landing on the moon possible
- Chart the immigration of a family to the U.S.

Critical Information Literacy Skills*

- Actively Read, View & Listen, K&Z p. 56
- Select Relevant Data, K&Z p. 62
- Sort, K&Z p. 94
- Note Making, K&Z p. 76
- Identify and Investigate Patterns and Trends, K&Z p. 108

*Koechlin, Carol and Sandi Zwaa. *build Your Own Information Literate School.* Hi Willow, 2003

History & Mystery Model

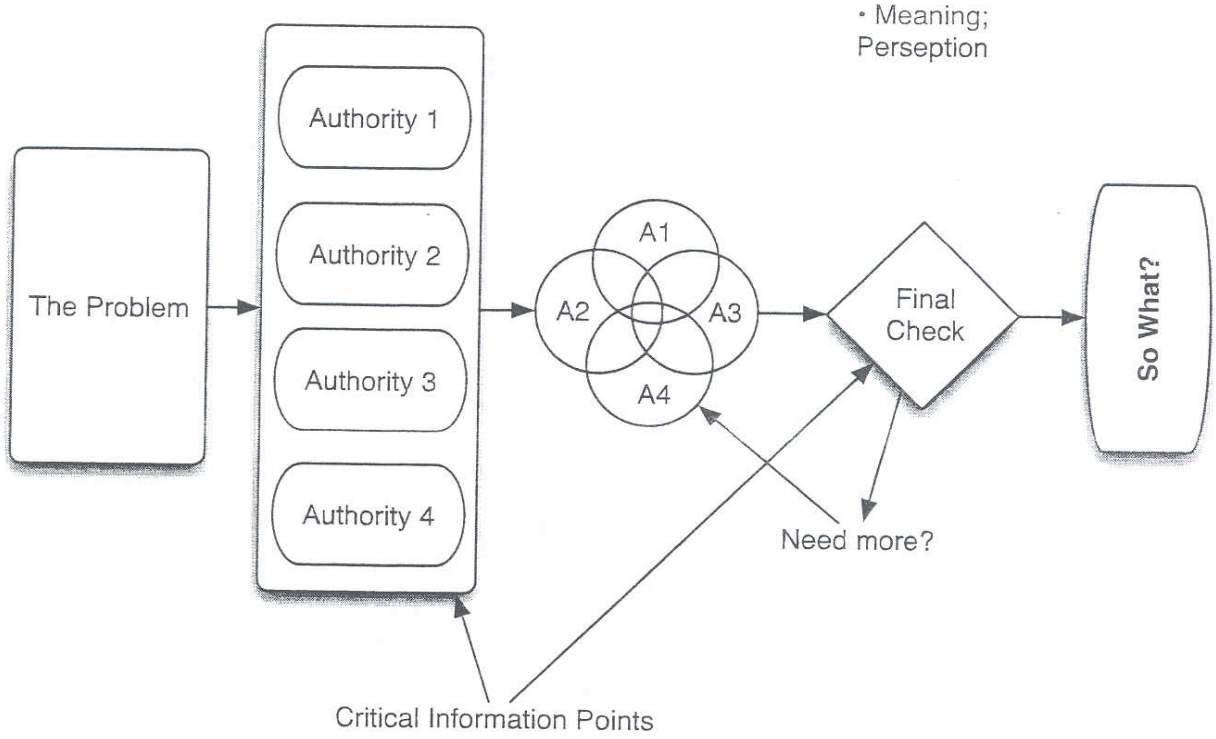
Build a Case for Solving the History/Mystery Problem

Study Primary/Secondary Evidence

Compare/ Contrast Activity

Check Evidence
- New Evidence Available?
- Reject some Data?
- Meaning; Perseption

Resolution



Why Use This Model?

- When, where, and what appears to have happened?
- What really happened?
- Why did it happen?
- What could have prevented it from happening?
- What can we learn based on what happened and why?

Possible Topics

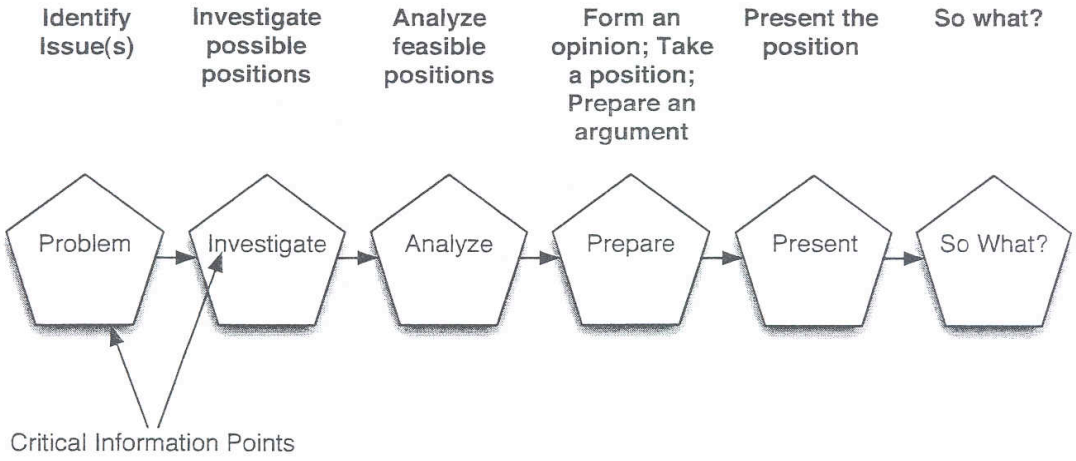
- Causes of war
- Change in government
- Natural catastropies
- Advances in technology
- Influence of artists/ authors
- Development of art forms and genres

Critical Information Literacy Skills*

- Select Relevant Data, K&Z p. 62
- Sort, K&Z p. 94
- Determining Fact, K&Z p. 66
- Compare, K&Z p. 98
- Make Connections, K&Z p. 116

* Koechlin, Carol and Sandi Zwaan. *Build Your Own Information Literate School.* Hi Willow, 2003.

Take a Position Model



Why This Model?

- Learn to take positions on sound ideas rather than on snap judgments
- Learn how to understand ideas much different than your own
- Develop critical analysis skills in the face of propaganda
- Build empathy for all positions, even as you take a stand
- Learn to articulate and defend a position taken
- Build the skills for living and participating in a democratic society

Sample Topics

- Political issues
- Controversial science problems
- Historical issues
- Moral issues
- Community problems
- School problems
- Literary critical issues

Sample Products:

- Position paper
- Persuasive speech
- Video presentation
- PowerPoint presentation
- Debate
- Panel discussion
- Switch positions, then present
- Action plan

Critical Information Literacy Skills*

- Actively Read, View, and Listen, K&Z p. 45
- Select Relevant Data, K&Z p. 62
- Determine Fact, K&Z p. 66
- Understanding Perspective, K&Z p. 136
- Share and Use, K&Z p. 155

* Koechlin, Carol and Sandi Zwaan. *Build Your Own Information Literate School.* Hi Willow, 2003

Think Model #12

The Re-Create Model

Select event, issue, time period piece

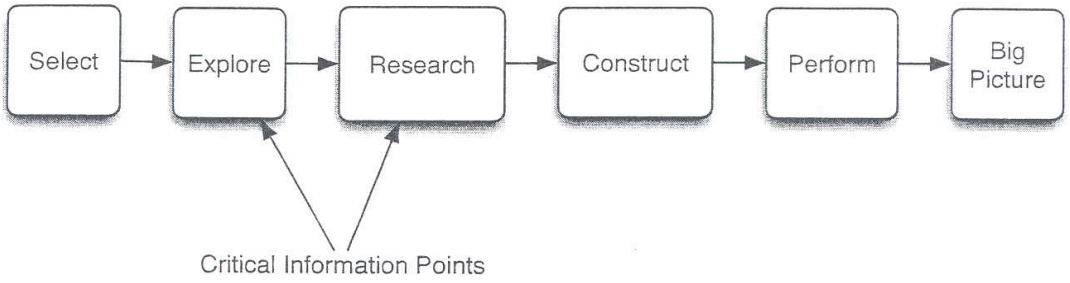
Explore event/ drama

Research every possible aspect to ensure authenticity

Select Format and Construct

Perform as:
- Drama
- Event
- Diary
- Newspaper
- Picture
- Painting
- Story

Big Picture



Why This Model?

- Why do things, seemingly strange, make sense in context?
- What kinds of persons contribute or distract while a major event is unfolding?
- What can we learn from the unfolding of major events?
- How does excellence in the reconstruction of an event help in the understanding of that event?
- Can we develop empathy for people in their time and place?
- Can we walk in someone else's shoes?
- So we judge the difference between fiction and realistic fiction.

Possible Topics:

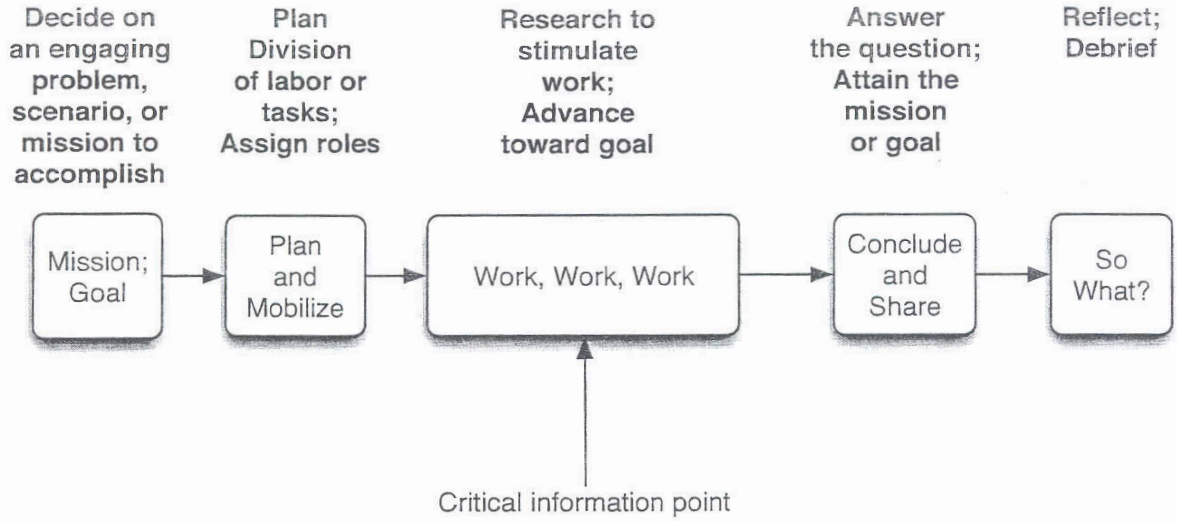
- Life in a place/time
- Historical event
- Perform a play that requires authenticity
- Pioneer life
- Slavery
- Interview an historical personality

Critical Information Literacy Skills*

- Use Primary Sources, K&Z p. 46
- Read Pictures, K&Z p. 70
- Make Connections, K&Z p. 116
- Interpret, Infer, Predict, K&Z p. 130
- Respond to Text, K&Z p. 112
- Impact, K&Z p. 124

* Koechlin, Carol and Sandi Zwaan. *Build Your Own Information Literate School.* Hi Willow, 2003.

The Quest Model
(The Well-Designed Research, Experiment, or Project)



Why Use this Model?

- Capture Realism; Build Expertise
- Build responsibility and independence
- Prepare for college or a profession
- Build a sense of achievement
- Capitalize on natural curiosities
- Make the curriculum relevant
- Develop deep understanding

Possible Projects:

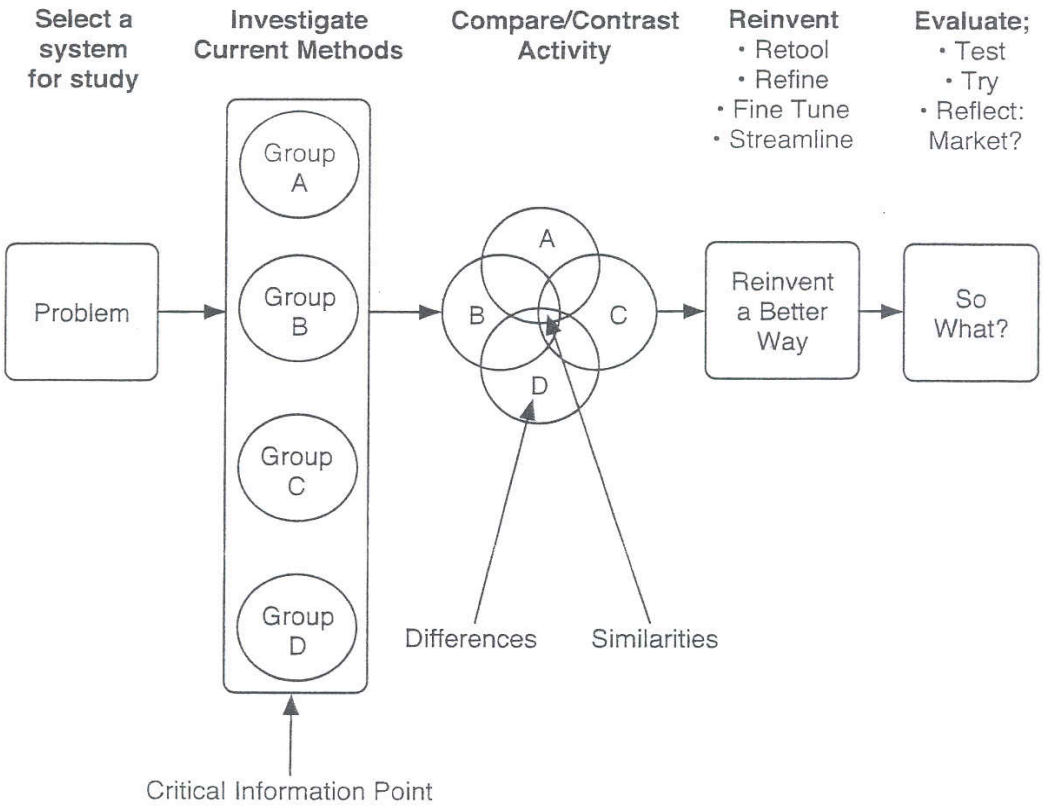
- Formal Research Paper
- Web Quest
- I-Search Paper
- Simulation Game
- Scientific challenge/ competition
- Senior Paper
- Independent Study
- Recital

Critical Information Literacy Skills*

- Define and Clarify, K&Z p. 1
- Locate and Retrieve, K&Z p. 23
- Select, Process, and Record Data, K&Z p. 51
- Analyze, K&Z p. 89
- Synthesize, K&Z p. 145
- Share and Use, K&Z p. 155
- Reflect, Transfer, and Apply, K&Z p. 165
- Adding It All Up, K&Z, p 173

* Koechlin, Carol and Sandi Zwaan. *Build Your Own Information Literate School.* Hi Willow, 2003.

Reinventing a Better Way Model (Systems Analysis)



Why Use This Model?

- Much of our economy depends on efficiency
- Prepares for competitions (best ideas)
- Production and marketing plans and Patents
- Stimulates creativity
- Simulates authentic problems
- Builds group work skills
- Saves time, money, natural resources, and energy

Possible Topics:

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

Critical Information Literacy Skills*

- Use Primary Sources. K&Z p. 46
- Make Connections, K&Z p. 116
- Use Organizers, K&Z p. 90
- Synthesize, K&Z p. 146
- Reflect, Transfer & Apply, K&Z p. 165

* Koechlin, Carol and Sandi Zwaan. *Build Your Own Information Literate School.* Hi Willow, 2003.

Mix It Up!

(Be Creative in Combining/Modifying All the Models)

Appetizers:

Background to Question Model
Sensemaking Model
Read, View, and Listen Model
Advice to Action Model
Compare and Contrast Model

The Main Course:

The Concept Jigsaw Puzzle Model
The Problems/Possibilities Jigsaw Puzzle Model
The Matrix Model
The Timeline Model
The History and Mystery Model
Take a Position Model
The Re-Create Model
The Reinventing a Better Way Model
The Quest Model

Examples:

- Do a Major Background to Question study before a Quest
- Do a Matrix before having to Take a Position
- Sensemake a problem before trying to Reinvent it
- Compare and Contrast as a History/Mystery Model unfolds
- Begin with a Jigsaw and then culminate with a Matrix

CHAPTER 4

THE QUESTION IS THE ANSWER TO UNDERSTANDING

CAROL KOECHLIN

SANDI ZWAAN

'What an important task we have ... to create learning that compels our students past twilight, imbued with a feeling of investigating something enormous!

-Debbie Abilock Knowledge Quest 2004

Teaching and learning is so exciting but ever so complex. For this reason alone we will attempt to keep it simple. We all want our students to be successful. We often measure success with a sigh of satisfaction when we realize, '"they got it, they understand." Having said that we all know that there is nothing simple about the ability of the human mind to acquire and demonstrate understanding of skills, knowledge and ideas. Fortunately there are many scholarly studies and resources available to assist us in working out our own personal 'understanding' of what student understanding looks like, sounds and feels like. Each individual teacher will build and rebuild their own schema over and over as their experiences build and new challenges unfold.

Wiggins and McTighe in *Understanding by Design* tell us, "You understand it only if you can teach it, use it, prove it, explain it, or read between the lines."

Patricia Wolfe in *Brain Matters,* tells us, "The more we understand the brain the better we'll be able to design instruction to match how it learns best... ..certain activities and strategies are more effective than others in increasing student understanding."

One point all the academic experts would agree on is that understanding is a process not a destination point. With this in mind we suggest that the most critical key to understanding is the 'question'. Without an inquiry catalyst student learning would be forever stuck in memorization and recall gear. It is the question that stirs the intellect, wakes up the neurons and provides the stimulus for students to do something with the raw numbers, facts and data they have gathered or been presented with. The Question can be prompted by both the curiosity of the student and the instructional intent of the educator. Both sources of questions are necessary if students are to learn and ultimately reach real understanding of topics and issues.

The Question is the answer to understanding.

Questioning is often thought to be an innate skill right up there with eating and walking. If you think about it though eating and walking are nurtured skills. So it is with questioning. In spite of the fact that our wee kindergarten students arrive at school bursting with 'why' and 'how come' questions, by the time they are in middle school many have lost this delightful and valuable curiosity. They are so used to answering teacher questions, worried about marks and giving the 'right' or expected answer, that they are now stuck in answer gear. How can understanding ever be achieved in this atmosphere? It is not surprising that some students in the middle years become very jaded about school and feel it has no relevance for them. They are tired of answering what we will call 'fake' questions generated by the need to cover curriculum content. We are not saying that teachers should not develop questions for students to answer. These questions are a necessary component of teaching students how and when to question. What we are saying is just try letting go, put the spoon in their hand and see what happens. It is not so difficult to turn the tables and teach students how to develop 'real' questions that uncover personal understanding for them. Allowing students the exhilaration of learning in an environment where their questions are valued and celebrated will reap rich rewards. When students have some ownership of their learning experience, enthusiasm, effort and efficacy will be generated.

Motivation is part of our rationale for teaching students to question. Our main objective is the chemistry that takes place between questions and understanding. The number one reason that many research projects in classrooms are ho-hum bristol board displays or plagiarized reports is because they are driven by the 'all about' syndrome. It is very easy to fix this! If you really want your students to demonstrate their personal growth and understanding through assigning research projects then they must process the data they have gathered through the lens of a good inquiry question or challenge.

The mere formulation of a problem is far more essential than its solution, which may be merely a matter of mathematical or experimental skills. To raise new questions, new possibilities, to regard old problems from a new angle requires creative imagination and marks real advances in science.

-Albert Einstein

Students cannot be expected to think critically and creatively about the ideas and knowledge of others unless they possess that magical chemical ingredient, the question, to start kick the process. The question can take the form of an inquiry question or statement. It could be a challenge, problem to solve or a decision to make but it must be there or the assignment becomes an exercise in pretend research. We all know the result – cut, paste and plagiarize!

The information available to students today renders it impossible to approach learning without questioning skills. Vast volumes of data available today on any given topic can only

be managed and analyzed by the information literate. Educating students for the 21st century requires educators to teach students how to be critical and creative users of information. Neither of those attributes can be accomplished unless students are also effective questioners.

"Once you have learned how to ask relevant and appropriate questions, you have learned how to learn and no one can keep you from learning whatever you want or need to know."

Neil Postman and Charles Weingartner

Questioning also plays a huge role in learning to learn. This kind of questioning is not as easy to define as the research question. These are questions that are often not voiced but mumbled inside our heads as we proceed with a task. Making students aware of these inner mumblings will help them develop metacognitive abilities. It is necessary to nurture these kinds of questions so that students have better strategies for interacting with text. It is the question that allows students to make the important self to text relationship.

Without the silent head question analysis of data and ideas would not take place. We can model these questions for students in think aloud and show them how we question in our heads as we read a newspaper article or a bill from the Hydro Company or examine an art object.

At first, 1 see pictures of a story in my mind. Then creating the story comes from asking questions of myself. 1 guess you might call it the 'what if – what then' approach to writing and illustration.
Chris Van Allsburg

Help students with the transition of becoming conscious of these silent head questions and controlling the quality of their quests by having them write questions down for a while. We offer several tasks in this book to help with this strategy.

The only questions that really matter are the ones you ask yourself

Ursula K. Le Guin

Questioning skills will also equip students with the tools to self analyze. It is with self questioning that we assess our results and our effort as well as set goals for improvement Again we need to model how this works and give students ample opportunities to drive their own bus.

Without strong questioning skills, you are just a passenger on someone else's tour bus. You may be on the highway, but someone else is doing the driving.

Jamie McKenzie

It is our belief then that questioning is at the very core of understanding. Every nugget of learning germinates from an investigation of some kind.

Questioning needs to be nurtured and developed at all ages and for all disciplines.

Questioning is an essential skill.

Questioning is the answer to understanding.

This chapter and the appendix that follows are excerpts from:

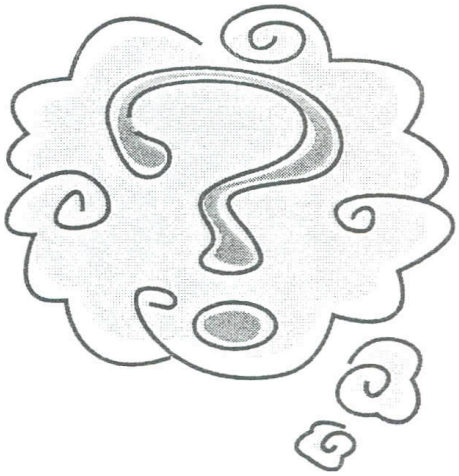
Koechlin, C., & Zwaan, S. (2006). *Q-Tasks.* LMC Source.

Carol Koechlin and Sandi Zwaan are authors of books used by library media specialists worldwide to create lessons that promote student inquire and develop information literacy skills.

Questioning for Success

How can questions and questioning elevate the quality research projects and student understanding?

- shift thinking from 'product' to 'processes'
- teach questioning skills
- move from assignments to 'teachments'
- build a culture of inquiry



Research without questions is 'fake' research

- all about regurgitation
- cut, paste and plagiarize
- fill in the blanks
- quote the experts

Research based on effective questions

- stimulates curiosity
- demands rich information sources
- guides and focuses research
- provokes deep thought
- prompts analysis and synthesis
- enables personal understanding
- encourages transfer

Three designs for developing understanding with questions
Student as Questioner (T = teacher: S = student)
T -provides exploratory activities to build background knowledge
T -instigates activities to spur thinking
S -experiments building questions until they have 'the just right' question
S -conducts research with their question as guide

Teacher as Questioner
T -poses an engaging question
S -builds background knowledge with the question as there guide
T-poses a higher level concept forming question
S -works with information and ideas to achieve understanding

Teacher and Students as Question Partners
T -designs an overarching question to frame the unit.
T -provides exploratory activities to build background knowledge
T -instigates activities to spur thinking
S -experiments building questions until they have 'the just right' question
T- brings class back to the unit overarching question

Bottom Line
Questions are the answer to building knowledge and understanding.

The Question is the Answer to Understanding

Increase learning and student achievement by elevating the level of investigation.

Curriculum Focus - Identify what it is you want students to know and be able to do as well as how students will demonstrate their understanding.

Rich Information - Gather the best resources available to support learning. Consider variety, readability, balanced perspectives, and accessibility.

Engaging Thinking - Design experiences for students to explore the topic with these rich resources and look for connections. These activities should spark their curiosity and wonderment about the topic as well as build background information.

Building the Question(s) -Ensure that students own the question(s). Provide opportunities and tools to help students design lots of questions until they find the *'just right'* question for them and/or their specific information need.

Deep Thinking - As students work with information the guiding question(s) will keep them on track and kick start critical and analytical thinking about the data they collect. This kind of analysis elevates thinking beyond just gathering and recording; cutting and pasting.

Deeper Understanding - Answering the question will ensure that students reach levels of synthesis. They will draw conclusions, solve problems, make decisions, invent, and create new meaning for themselves when their thinking is driven by their question. Deeper thinking based on effective questions eliminates the possibility of plagiarized reports!

So What! Students must have opportunities to share their learning in an authentically with others for them to further value and understand the significance of their findings. They must have opportunities to transfer and apply their learning; to reach metacognition.

The cycle continues as students formulate new questions and/or decide to take action.

Power-up Your Inquiry Question

Question starters		**Focusing questions**			**Looking for relationships**	
Who	Discover	changes	types	kinds	significance	compare
What	Investigate	jobs	roles	importance	consequence(s)	contrast
When	Compare	purpose	structure	characteristics	project	cause
Where	Uncover	value	lifestyle	relationships	implication	effect
Why	Determine	function	defense	adaptations	connection	value
How	Examine	capacity	survival	conditions	correlation	analyze
Which...	Study	intent	result	infer	pattern(s)	
	Research		outcome	imply	trend(s)	

Use this checklist to review your inquiry question(s)

- ☐ Stimulates your curiosity
- ☐ Encourages you to dig deep for your information
- ☐ Challenges you to think about your discoveries
- ☐ Prompts you to analyze your findings
- ☐ Guides your research quest
- ☐ Keeps you on track
- ☐ Sparks your imagination
- ☐ Helps you to make personal meaning

Use one or more of the **focus** or **relationship** words in your question to give it research power. Brainstorm your question ideas and record your best efforts here.

Review your questions with the checklist above and record your inquiry question(s) here. Conference with your teacher and teacher-librarian before you begin your quest.

Koechlin and Zwaan. Excerpt from a forthcoming publication. *Quest Tasks: The Student as Questioner.*

Question Builder Frames

Who is, are, was, were did, does can, could would, should will, might	
What is, are, was, were did, does can, could would, should will, might	
When is, are, was, were did, does can, could would, should will, might	
Where is, are, was, were did, does can, could would, should will, might	
Why is, are, was, were did, does can, could would, should will, might	
How is, are, was, were did, does can, could would, should will, might	
Why is, are, was, were did, does can, could would, should will, might	
Which..... is, are, was, were did, does can, could would, should will, might	

Koechlin and Zwaan. Excerpt from a forthcoming publication. *Quest Tasks: The Student as Questioner.*

PART 2

LESSONS THAT PROMOTE PARTICIPATORY LEARNING

CHAPTER 5

TRANSFORMATIONS BY STUDENTS AT SAN JOSE STATE

Causes of the current political unrest between the Israelis and the Palestinians by Teresa Capasso

Old Lesson: Students are given free time in library to research prepared questions on dittos regarding issues about the Israeli/Palestinians conflict.

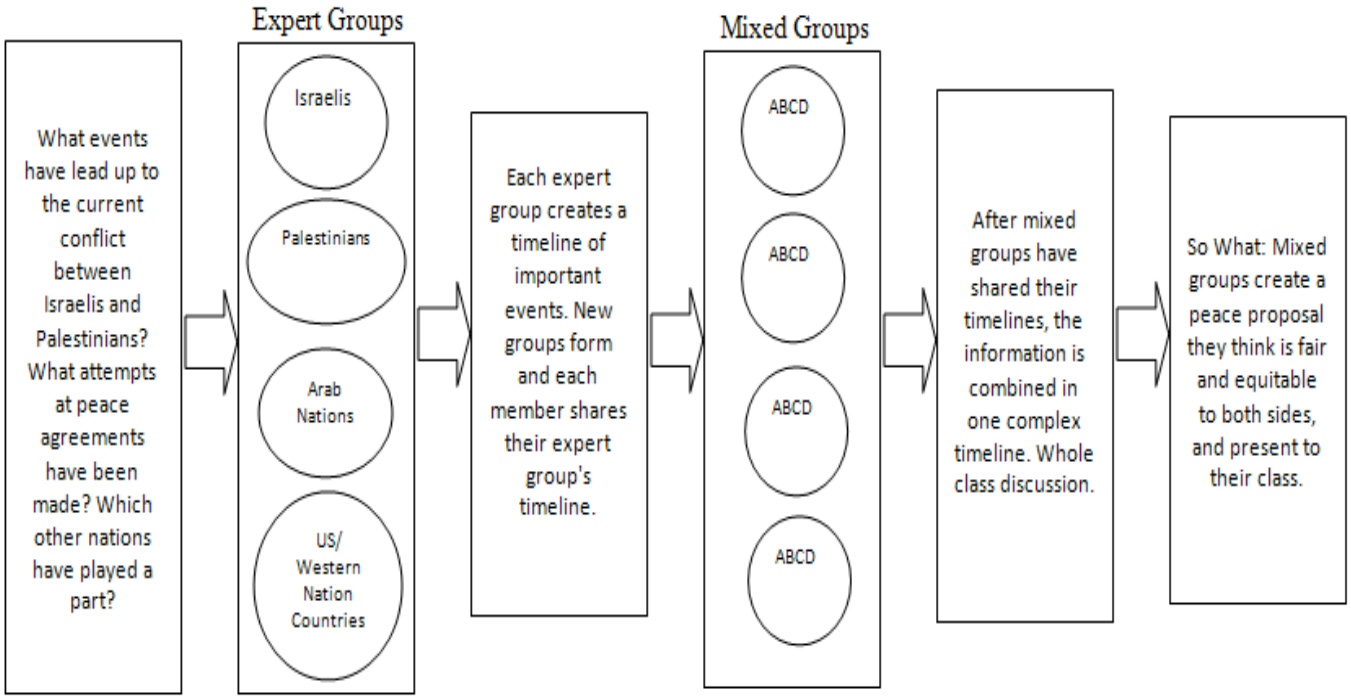


Figure 2: Timeline Model

Problem: Which groups have played a role and what events have contributed to the current political unrest between the Israelis and the Palestinians? What attempts have been made to negotiate a peace agreement and which other nations have been involved?

Students will be assigned to a expert group which will study historical events through the lens of one of the important "players" in the Israeli-Palestinian conflict. Each group will design a timeline from: http://www.readwritethink.org

New groups are formed, which contain a member from each of the expert groups to analyze and compare timelines events. All timelines are merged into one complex timeline. Whole class discussion ensues. What patterns/relationships/cause/effect emerge? Mixed groups reconvene to write a peace proposal that they feel will be equitable, and present to their classmates.

State Content Standard: 10.10 Students analyze instances of nation-building in the contemporary world in at least two of the following regions or countries: the Middle East, Africa, Mexico and other parts of Latin America, and China.

1. Understand the challenges in the regions, including their geopolitical, cultural, military, and economic significance and the international relationships in which they are involved.
2. Describe the recent history of the regions, including political divisions and systems, key leaders, religious issues, natural features, resources, and population patterns.

Info Literacy Skills: Actively Read, View and Listen; Select relevant data; note-making; collaboration; make timelines; make connections; patterns and trends, synthesize, redesign. Reflect, transfer and apply.

Necessity is the Mother of Invention: The Effects of the Industrial Revolution by Sarah Bosler

Concept Jigsaw Puzzle Model

Old Way: Students research the causes of the Industrial Revolution using Internet and other resources. Write an essay explaining its impact on a particular country.

New Way: Students research the effects of the Industrial Revolution from the perspective of one country and collaborate with other groups to understand the bigger picture.

CA Content Standards: 10th Grade World History

10.3 Students analyze the effects of the Industrial Revolution in England, France, Germany, Japan, and the United States.

1. Analyze why England was the first country to industrialize.
2. Examine how scientific and technological changes and new forms of energy brought about massive social, economic, and cultural change (e.g., the inventions and discoveries of James Watt, Eli Whitney, Henry Bessemer, Louis Pasteur, Thomas Edison).
3. Describe the growth of population, rural to urban migration, and growth of cities associated with the Industrial Revolution.
4. Trace the evolution of work and labor, including the demise of the slave trade and the effects of immigration, mining and manufacturing, division of labor, and the union movement.
5. Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy.
6. Analyze the emergence of capitalism as a dominant economic pattern and the responses to it, including Utopianism, Social Democracy, Socialism, and Communism.
7. Describe the emergence of Romanticism in art and literature (e.g., the poetry of William Blake and William Wordsworth), social criticism (e.g., the novels of Charles Dickens), and the move away from Classicism in Europe.

Info Skills: Explore a Topic, Develop Questions, Locate Resources, Evaluate Resources, Collaborate

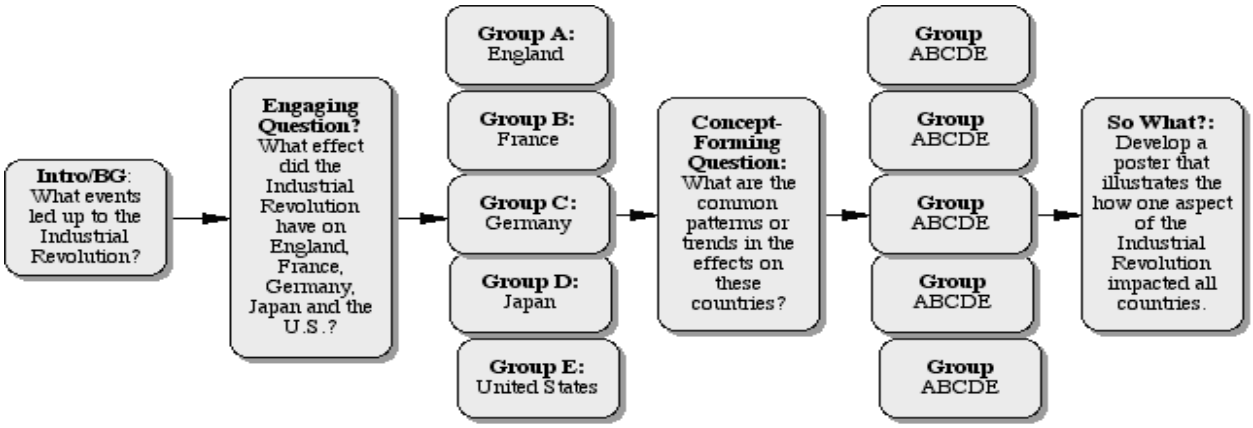


Figure 3: Concept / Jigsaw Puzzle Model

Introduction/Background: What events led up to the Industrial Revolution? Explain England's role reflected in 10.3.1 of the standards. Teacher provides information, brief introduction.

Engaging Question: What effect did the Industrial Revolution have on England, France, Germany, Japan and the U.S.? (Standard 10.3)

Specialist Groups: Students get into groups according to country. They research the effects that the six topics outlined in standards 10.3.2-7 had on their country.

Concept-Forming Question: What are the common patterns or trends in the effects on these countries?

Sharing Groups: Discuss and cluster the common elements. Develop a list of similar effects. Students return to Specialist groups and discuss impact that Industrial Revolution has had on all of these countries.

So What?: Develop a poster that illustrates the how one aspect of the Industrial Revolution impacted all countries.

Extended Activity: What impact has the Internet had on the U.S. economy over the past 10 years?

Civil Rights Leaders by Deborah Long

The old way: Students research a prominent person (African American History month, authors, scientists, librarians…) and take notes from encyclopedias about the details of the subjects' lives. They then present a summary of this information as an oral report, individually, on several successive class days. The new way: Mixing timeline model and take a position model. Transformation – Civil Rights Leaders

Timeline Model

Divide students into groups or teams of 4-5 members. Assign one decade to each team.

1. Each group member choses a prominent figure from a particular decade to research. (Teacher may have to make suggestions in advance).

2. Groups meet, consult sources and develop a timeline of significant figures and their achievements within each decade.

3. Timelines from all groups are displayed in chronological order.

4. Groups study timeline to determine patterns and trends in civil rights leadership.

Take a Position

1. Each group develops criteria for selecting the civil rights leader of the decade.

2. Groups select leaders of the decade based upon criteria. They may need to consult more sources as well.

3. Groups present their selections to the large group in poster or other presentation format including the criteria for selection.

4. Class members write position papers evaluating leaders to choose the most influential civil rights leader in history.

California standards addressed: (Sample only)

History/ Social Science -- Grade 11: 11.10 Students analyze the development of federal civil rights and voting rights.

English/ Language Arts -- Grade 11: Research and Technology 1.6 Develop presentations by using clear research questions and creative and critical research strategies:

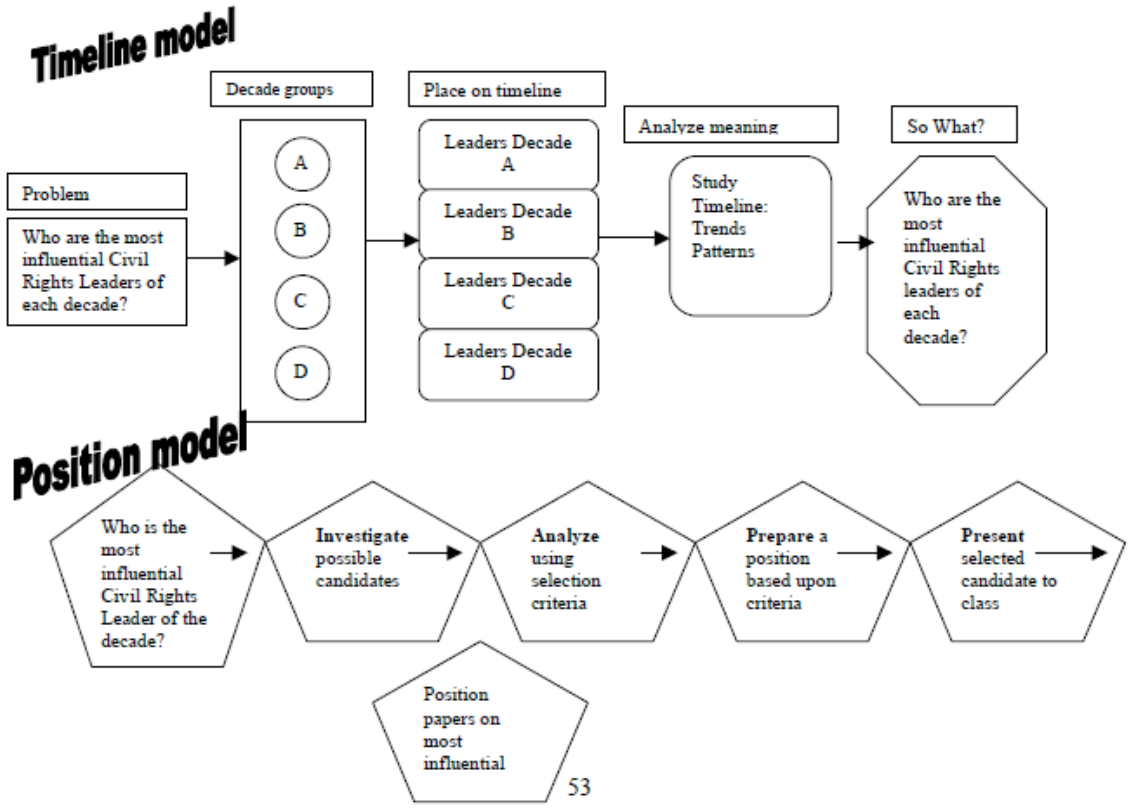


Figure 1: Timeline Model and Take a Position Model

Transformation - Cleaning up the Campus after lunch by Deborah Long

The old way:

The principal makes a general announcement about trash left after lunch. Administrators patrol campus after lunch and ask students to pick up trash. If it doesn't get cleaned up, either the custodians find time to do it, or the school is left littered.

The new way: Building a Better Way Model

Essential Question: What is a better way to make sure the campus is clean after lunch?

1 Divide students into groups. Assign each group to interview stakeholders (administrators, teachers, students, custodians) (lL skill: Primary Resources)

2 Groups develop questions and note taking instruments designed to get input from their group of stakeholders. (lL skill: Sort and take notes)

3 Whole class discussion to determine what questions will be asked of all groups so that data is consistent. (IL skill: Make connections; Synthesize)

4 Class designs interview and note taking instruments (IL skill: use organizers) and conduct interviews. Groups also consult information sources to find out how this problem is solved in other schools.

5 Groups study the responses of various stakeholders to find differences and similarities. (IL skill: Make connections)

6 Groups put summary of data on classwide chart so that opinions of all stakeholders are represented (IL skill: Synthesize)

7 Class designs a program for clean up based on input from stakeholders and other information sources.

8 Class develops an appropriate persuasive presentation (PowerPoint, data charts) and presents new program to the principal for his/her approval. Class helps to implement the new system. (IL skill: Reflect; Transfer and apply)

9 Class designs an evaluation tool to give to stakeholders after the new system is in place. Class makes changes to system as required.

California standards addressed: (Sample only)

ELA: Grades 9,10: Writing Strategies -- *Research and Technology* 1.3 Use clear research questions and suitable research methods (e.g., library, electronic media, personal interview) to elicit and present evidence from primary and secondary sources.

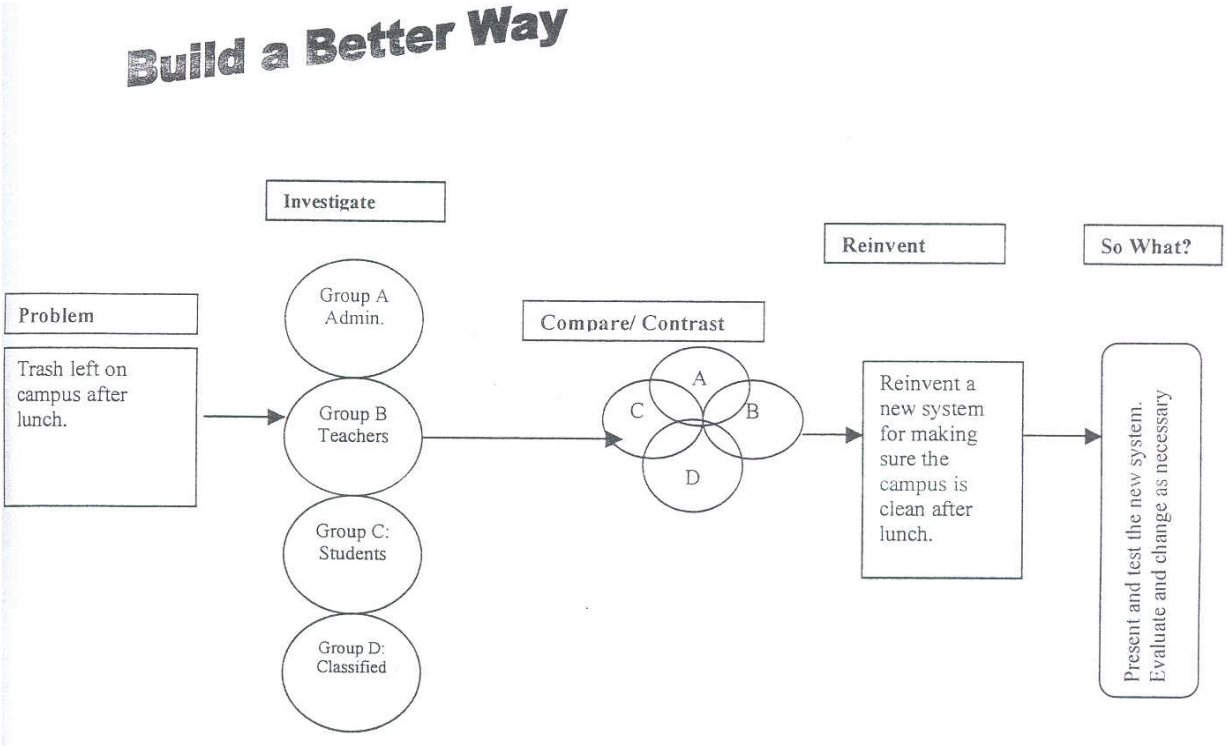


Figure 4: Build a Better Way model.

CHAPTER 6

"THERE WAS A GREAT COLLISION IN THE STOCK MARKET" MIDDLE SCHOOL STUDENTS, ONLINE PRIMARY SOURCES, AND HISTORICAL SENSE MAKING

FRANCES JACOBSON HARRIS

Abstract

The function of most archive collections, online or not, is to provide material in its raw form, without the layering of contextual treatment or teacher mediation. What does it mean when K-12 students have ready access to such archives? This paper describes the results of an exploratory study of eighth grade students who used online primary sources as part of on oral history unit. In preparing to interview contemporary farmers, the students were given a historical foundation in twentieth century farm history, starting with the Dust Bowl and continuing to the present time. To synthesize their knowledge and help them connect past events to present circumstances, the students analyzed photographs from the Farm Security Administration-Office of War Information photograph collection (http://memory.loc.gov/ammem/fsa.html) on the Library of Congress American Memory web site) and wrote fictionalized family stories based on these images. The student work was analyzed for common patterns in the use of bibliographic information, the ability to demonstrate skills of observation and interpretation, the ability to reflect a historical perspective in fiction writing, and evidence of higher level thinking skills. The results reveal a number of issues that have importance to the school library media and information literacy fields and suggest several avenues for further research.

Primary sources can easily bore, mystify, or mislead the novice learner. Many K-12 educators assume that only very advanced students of history can be turned loose in an archive and make meaning of what they find. It hardly matters, however, because student access to primary sources has traditionally been very limited. Historical archives do not typically open their holdings to visiting troops of middle school students, whose teachers can hardly justify a labor-intensive field trip when the learning outcome is so nebulous. But the Internet has transformed these possibilities. Anyone who can click a mouse now has access to a critical mass of primary historical material. K-12 teachers can introduce their

students to compelling resources like those in the Library of Congress American Memory collections (http://memory.loc.gov), Calvin College's German Propaganda Archive (http://www.calvin.edu/academic/ cas/gpa/), or the Smithsonian Institution's *Library and Archival Exhibitions on the Web* (http://www.sil.si.edu/SILPublications/ Online-Exhibitions). As K-12 teachers inevitably turn to rich resources like these, they must determine how best to incorporate primary sources and provide the meaningful context students need to enhance their historical comprehension and sense making.

There are a number of sound justifications for the use of primary sources in the K-12 setting. One argument is that the dependence on textbooks can compromise student learning. Novice learners have a tendency to view history as a sequence of indisputable events. Wineburg (1991) observed that teachers often assign textbook readings without contradicting student assumptions that the textbooks are objective and omniscient conveyers of these events. In studying historical problem solving methods and skills, he asked high school students and professional historians to look at a range of conflicting written and pictorial sources about a single historical event and construct the "true" history. The students gave most credence to the version of history supplied by the textbook, in contrast to the historians who were immediately inclined to examine the credibility of the sources, whether primary or secondary, and gave little attention to the textbook treatment.

The historians also relied on two other criteria: corroboration, the act of comparing sources to determine reliability, and contextualization, situating the claims of a document in the particulars of the historical events. Students, on the other hand, viewed the textbook as the "primary" source, offering straight, unbiased facts. For historians, the question was not if a source was biased, but how its bias influenced the quality of the information.

McKeown and Beck (1994) noted another problem with textbooks and student learning, which is that their authors often assume students have more background than they actually do. Students' lack of adequate context results in a shallow understanding of the historical phenomena. In addition, textbooks are often not engaging and suggest no "voice" in the way trade books do. But textbooks are traditionally at the center of the classroom curriculum, endowing them with an undeniable authority and a "beyond reproach" objectivity (McKeown and Beck, 1994, p. 19). Students are unaware of the role of the historian or the textbook as interpreters of historical "fact," rather than mere relaters of memory. Garner and Gillingham comment that "..textbooks are seldom read selectively in K-12 classrooms, where a start-to-finish treatment is the norm" (Garner and Gillingham, 1998, p. 227) They describe the "textbook-as-tyrant trap" where the curriculum and pace are driven by the book in a transmission model of teaching.

Rouet et al (1998), who studied college students' use of historical information, confirmed this tendency of students to give high marks to the credibility of textbooks. But the students in their study also recognized the value of primary documents. The researchers found that proper preparation helped student understanding. "In particular, when students

are told explicitly that different points of view exist about the issue at hand, and when they are told this before engaging in the documents, they can come to discern some sources as more useful and trustworthy than others." (Rouet et al, 1998, p. 104). These researchers noted that aside from the information that is contained in a primary source document, the reader must look at the subtext – the other attributes that affect the meaning and significance of the document. In addition to an author's identity, the reader needs to consider additional characteristics such as date of publication, whether the document is private or public, official or unofficial, juried or not. For a photographic image, the viewer needs to add audience, the intent of photographer, any possibility of staging, and so on. Their research points to a progression in the development of historical thinking. Student comprehension proceeds from sequential thinking (i.e., "this happened then this happened then this happened") into a more complex view of historical events, involving abstract thinking, and other higher order cognitive skills. With experience and domain knowledge, students can learn to contextualize, scrutinize the nature of a source, and use a broader common sense.

Primary sources, therefore, have been shown to be extremely valuable learning tools in the classroom. The question lies primarily in *how* primary sources are used by teachers and students. What are the differences when primary sources are used in transmission modes of teaching as opposed to inquiry-based classrooms? With new technologies, teachers can easily "update" their lessons by integrating primary source images into PowerPoint presentations, in place of their former practice of passing an artifact or a book around the classroom during their lectures. Bass and Rosenzweig (1999) counter this type of application with their advocacy of "the novice in the archive" approach to inquiry-based learning, particularly in the case of digital materials. They observe that: "The unique opportunity with electronic, simulated archives is to create open but guided experiences for students that would be difficult or impractical to recreate in most research library environments. It also frees students and teachers from their traditional dependence on place for first-hand social, political, or historical research. Or perhaps more importantly, it means that students can more readily compare their own community with others, more distant." (Bass and Rosenzweig, 1999, p. 49). These questions concerning the use of primary sources resulted in this effort to explore the issue further.

The Project

This paper looks at a group of sixty academically gifted eighth grade students and their use of historical photographs for a creative writing social studies assignment. These students were preparing for an oral history unit on family farming. Although their school and town are situated in the middle of Midwestern farm country, most of the students had little or no connection to farming in their personal lives. No ready textbook was available even had the teacher wanted to use one. Here was a situation in which teaching materials could be culled and assembled by the collective efforts of the teacher, the school librarian, and the students. The project offered a good opportunity to conduct informal action research on an

interactive pedagogical model involving the use of primary sources by middle school students. The action research was conceived as an effort to improve teaching while observing and reflecting on how students engage with primary sources.

In brief, the project was structured as follows:

- The teacher taught lessons on the recent history of farming in the United States, starting with the Dust Bowl era and the government programs of the New Deal and continuing to the state of present day family farming.

- The teacher supplemented her lectures with a wide variety of reserve readings. Students completed a small questionnaire after finishing each reading.

- Students wrote short stories bridging the history between the government programs of the Depression era and the current status of family farming in the United States.

- The classes took a field trip to visit area farms.

- The students conducted oral history interviews with area farmers. They recorded the interviews and edited them. A small cadre of students then produced a thirty minute radio program for broadcast on the local public radio station.

The focus of this particular research is on the third step, the story writing segment of the project. The creative catalyst was provided by the black-and-white documentary photographs from the Farm Service Administration-Office of War Information collection on the Library of Congress American Memory web site (http://memory.loc.gov/ammem/fsahome.html), which contains over 112,000 photos including such well-known images as Dorothea Lange's *Migrant Mother*. As the school librarian, I taught a lesson on using the collection and spent several days in the computer lab with the students as they searched, selected photographs, and wrote their stories. My lesson included instructions in how to search the collection by subject and key word, how to "read" a photograph, and how to view neighboring photographs to get a broader view of events.[13] Then, working in pairs, the students selected a photograph, conducted a visual analysis exercise, created their own title for the photograph, and then wrote a story that would take into account a person in

[13] The FSA/OWI collection has a unique feature. By clicking on an option to "Display Images with Neighboring Call Numbers," it is possible to see thumbnail images of the photographs that appear on the same negative strip. In many cases, the surrounding images help build a sense of context.

the photograph and the succeeding two generations. The students chose their own partners, which resulted in all same gender pairings.

The visual analysis portion required students to answer the following questions:

- What is happening in this picture?
- What are the circumstances this photo represents?
- How are the people dressed? (Be specific in your descriptions)
- What can you observe from the expressions on their faces, posture, position in the photo, etc.?
- Describe the setting. What do you notice about the room (furniture, walls, etc.)?
- Is there anything interesting or surprising about the situation in the photo? Given what you know about the era, how might you explain it?"

In their stories, which had to be at least two pages long, the students were to address how the person in the photograph survived the Depression, indicate if (and how) the next generation(s) stayed on the farm, and describe how the legacy of the farm stayed (or did not stay) with the succeeding generations. The final product included a copy of the photograph with its new title, a copy of the bibliographic information page, answers to the visual analysis questions, and the story.

As alluded to earlier, textbooks appear to speak with a single voice, portraying events from a tidily edited vantage point. In contrast, this project was designed to expose students to multiple historical perspectives. A variety of perspectives contribute to any single historical event, which means there are also multiple possible representations of the event – whether contemporary to the event or created after the fact. Each individual source reflects one view, one glimpse, and must be coupled with other sources, "because a situation model cannot be formed by reading a single document" (Rouet et al, 1998, p. 98). Students acquired background information from the teacher and from a wide variety of short readings from which they could select – current newspaper articles, tables of statistics, short fiction, and trade publications. Exposure to the breadth of the FSA-OWI collection was another mechanism we used to supply students with multiple sources of historical information, helping them develop a richer understanding of complex phenomena and avoid a simplistic view of the events. The photographs exposed them to contemporary visual records, adding a further dimension to their knowledge base.

The questions in the visual analysis portion of the assignment prompted two different types of thinking: Questions 1, 3, and 5 called for straightforward observation-based description. Questions 2, 4, and 6 led the students to analyze and interpret what they

observed. One purpose of these questions was to hone students' visual literacy skills by directing them to carefully "read" the photograph as a piece of primary historical evidence. Another purpose of the questions was to help structure student thinking as a way of preparing them to conceptualize a bigger picture. They needed to think deeply and analytically about the photograph before launching into the creative writing portion of the assignment. Their task for the story was to invent rather sweeping, but plausible, causal relationships taking place over a broad time period. In a sense, the students were supplied with an out-of-context artifact, then were charged with supplying a meaningful, historically appropriate interpretation.

The student products were analyzed on a number of levels. The visual analysis task was studied to see how students differentiated between observational tasks and interpretative tasks, and to understand their varying visual literacy skills. The stories were examined for recurring characteristics and themes in writing style and historical sense making. The intent of the analysis was to let the stories speak for themselves, not to test a hypothesis or anticipate trends. This was accomplished by using a naturalistic method generally based on interpretive traditions (Miles and Huberman, 1994) and grounded theory methodology (Glaser and Strauss, 1967), which in this case meant an iterative, quasi-ethnographic technique of reading the texts and coding themes, then rereading the texts to verify themes and code new ones, and so on.

ANALYSIS OF VISUAL OBSERVATION TASK: There is a well-known cliché that says "Pictures don't lie." But neither do they tell the entire truth. Fasulo et al noted that, "Photographs, as sources, appear to possess 'tricky' features" (Fasulo et al, 1998, p. 135). A viewer has to consider the photographer's intentions in terms of a notion of relative objectivity and be aware of techniques that color the meaning of a photograph, such as the framing of the subject and the use of light. Finally, photographs capture a single instant; there is no before and after, no "around."

Students seemed to struggle in their efforts to separate the observation tasks in questions 1, 3, and 5 from the interpretive tasks in questions 2, 4, and 6. Unfortunately, the language of question 1 contributed to their confusion. "What is happening in this picture?" should have been worded "What do you see in this picture?" In general, though, students found it difficult to simply describe without judging or drawing inferences. One group of students wrote this observation about a photograph: "They only have enough silverware for the parents, so the children eat with their hands" instead of "the parents are eating with silverware, and the children are eating with their hands."

Levstik and Barton (1996) observed that children connect what they see to patterns from their own lives or from other familiar sources, a strategy called *intertext*. The authors identified family story telling, family activities (including trips to historical sites), popular culture, fiction and nonfiction trade books, and school instruction as types of intertext. Intertext best supports children's understanding of material culture, the objects and tools of everyday life, rather than more conceptual aspects of historical change over time. The

silverware example illustrates an intertext phenomenon. In our students' lives and experience, not having enough silverware for all family members would have been the only plausible explanation. It may also be that students thought they were not doing enough by simply describing what they saw.

These students were probably also caught between the instructions to remain descriptive, their own need to make connections to familiar signposts in their lives, and a developmental inclination to go to the next step. Wigfield, Eccles, Pintrich noted that changes in cognition and achievement occur during early and middle adolescence.

> *"…the most important changes to note are the increasing ability of children to think abstractly, to consider the hypothetical as well as the real, to engage in more sophisticated and elaborate information-processing strategies, to consider multiple dimensions of a problem at once, and to reflect on oneself and on complicated problems."* (Wigfield, Eccles, Pintrich, 1996, p. 151)

Accordingly, when asked to be specific in describing how the people in the photograph were dressed, one group wrote: "*His shirt is very baggy, as though it was not made for him."* The first half of the sentence meets the description requirement; the second half of the sentence interprets and illustrates. The reader can visualize just how baggy the shirt is.

Students sometimes went beyond interpretation, leaping to conclusions or embellishing in some way, as in this example: "The little boy looks sort of lost and spacey in this picture. He is also kind of hiding, perhaps from reality." This type of description may be a characteristic of adolescents' ability to consider a great deal of information, but still need experience and practice to harness the information effectively. (Wigfield et al, 1996) The academically gifted students in our sample were no different in this regard. In general, student descriptive skills ranged from being very flat to highly complex and detailed, reflecting varying rates of cognitive development. There was also some indication of gender difference in this skill, with boys appearing to be stingier with adjectives, though more rigorous study would be needed before a definitive claim could be made of this observation.

In responding to the interpretive questions, many student groups drew overreaching and rather absolutist conclusions. However, others showed signs of higher order thinking, demonstrating awareness of the subtext (Rouet et al, 1998), the photographers' intentions, and the "tricky" features of photographs (Fasulo et al, 1998). These student pairs used hedging vocabulary like "probably," "seems to be," and "appears" in their analyses. The most sophisticated students mentioned an awareness of the photographer and his or her possible influence on the subjects' demeanor in the photograph:

> *"These people are showing hardly any emotion, and the children don't even seem to care that their pictures are being taken."*

"Since they don't have a frown on their faces, but not any smiles either, we can conclude that they are unsure of how to react. This is probably the first time they have been photographed."

Several student groups reached conclusions that could be considered reasonable based on the evidence at hand, even though a more experienced viewer might draw different inferences from the same evidence.

"The people are dressed shabbily. This picture was taken in January, yet all of the children are wearing short sleeves. "

In this particular case, the family is standing next to a wood burning stove. It is unlikely that the students in this cohort would have direct (or even indirect) experience with the heat such a stove generates in a small space. The same students drew another interesting conclusion:

"She is also wearing shoes and socks, which shows that she is not from a very poor family. Shoes would definitely come after food."

Question 6, which asked students to describe anything interesting or surprising in the photograph, elicited some of the most compelling responses:

"None of the subjects in the picture are looking at the camera. Film was fairly expensive in those days, so this kind of surprised me. But it probably makes sense, since the photographer is trying to capture normal farming life during the Depression."

Here is another example of students inserting their own sensibilities into the historical scene. If these contemporary student writers were the participants in this scene, they would likely try to support the photographer's intent of capturing normal farming life during the Depression and not "pose." But the cost of the film most likely had no actual significance for the subjects of the photo, who were probably never going to see the results. Though the students' awareness of the photographer's influence is a step in the right direction, they fail to take the next step which is to recognize that the photographer is a stranger to the household, perhaps representing outside authority. His or her subjects might have been quite reluctant to make eye contact with this outsider.

Other student groups recognized and speculated about extremely subtle cues:

"What is surprising in this picture is the contrast between the family's appearance and the house and conditions that they live in. I think a logical explanation for this is that although the family is not very wealthy, ultimately judging from their house, they want to look their best for the government representative."

"There is a fire insurance banner on the house, and yet the house would probably burn down with a small flame. Why provide insurance? This possibly was part of a New

Deal package, or maybe the poster was found by the man somewhere and used to repair or cover something. Also peculiar is that FDR's New Deal promised prosperity, but this man was still on the lines of poverty."

ANALYSIS OF STORY TASK: Two structural aspects of the story task bear examination: the personal threads (about the people, the characters) and the portrayal of historical features (the facts, the sequences of events). As one would expect in students of this age, elements of naïveté are present in both. In one story, the authors describe a 56-year-old mother and a 60-year-old father who had five children ranging in age from four to sixteen. In another, a mother, described by the students to be in her late fifties, had a three-year-old. Old mothers were a common theme, perhaps because many of the women in the pictures look old by modern standards. But the children in the pictures are undeniably young, though the storytellers have difficulty approximating their ages properly. In some cases, students just do not seem to be thinking through the task and get sloppy. In one story, a journey to California took five years, from the beginning to the end of World War II. The diarist telling another story fell in love September 10, 1937. By September 13th he had invited his paramour to for dinner "quite a few times now" and asked her to marry him on September 24th. Two years later the couple had three children and had established a farm with soybeans, corn, cattle, dairy products. What were these writers thinking? Unfortunately, the first draft of these stories was also the final draft. A simple solution would have been to require subsequent drafts or assign students to critique one another's stories.

Because the students were not assigned fixed rubrics to demonstrate their knowledge of family farm history, it is not useful to generalize how much "factual" history was learned from the story writing task. The purpose of the exercise was in large part to help students personalize the scope of farming history so they would be more receptive and engaged participants in the oral history part of the project. Nevertheless, some interesting patterns emerged in the student writing. For example, most of the story beginnings were much more detail-laden than later parts of the stories. The student authors were describing the first generation, the one from their chosen photograph, and establishing character and setting. After a heavily invested opening, the writers often seemed to run out of steam and rush through the next two generations.

As a group, these students provided few descriptions of modern farm life, with its advances in technology and the growing predominance of corporate farming. It could be that the photograph was a concrete catalyst that sparked better attention to detail when describing the Depression period. The students had no visual prompt to help them ground the later periods of the story with realistic detail. In addition, more in-class time was spent learning about the Depression period than the modern period. Students were expected to glean additional information about modern farming from the reserve readings. This would suggest that students learned more from the teacher-led instruction than they did from the independent reading. It might also indicate that the visual images left more of an impression on the students than did the texts.

Levstik and Barton (1996) observed *ahistorical* responses from some younger children in their study. These children constructed contexts they derived from their own life experiences rather than from the historical information they were given, a technique they devised to help them make sense of events. In similar fashion, some of our students tended to overlay their own contemporary standards on historical time frames. For example, several stories featured a girl who inherited the family farm and ran it – a scenario relatively rare during the nineteen-forties and fifties. Other stories included first generation Dust Bowl daughters who went to college, even agricultural school. A possible explanation is that some of the photographs included only female children and the story writers wanted or felt some obligation to keep the farm going in their fictional family. A pair of student authors wrote a story about an African American family that succeeded beyond probable possibility for the time period; in yet another about an African American family, race played no part in their fortunes whatsoever – an equally unlikely scenario.

As we saw in the visual analysis portion of the assignment, some student authors tended to jump to unsupported conclusions. The students who wrote a story about a family with ten children observed that:

> *"There was a much higher birth rate because there were no abortions then." A woman in a different story is explained in this way: "She didn't have any children as she felt that it was a way of turning women into incubators."*

In both cases, modern sensibilities were again being applied to Depression-era situations.

As in the visual analysis exercise, a few stories also incorporated the photo session into the narrative.

> *"In a family photograph taken by a man named Lee Russell in May of 1938, you can see disappointment in the faces of my dad's family."*

> *"Things got better bit by bit every year until 1937, when the strange man came to their house. And there they stood together, just so the strange man, who called himself a photographer, could take a picture of them with a queer instrument called a camera. They were standing on the porch of their simple yet relatively 'luxurious' (after all they were quite well off, considering that they had ten children) house, the freezing air getting to their faces. They had never been photographed before, so they had serious expressions on their faces. The faces held not a frown, but not a smile either. And they then saw the camera flash. This was the Simmons family in Marseilles, Illinois. It was 1937."*

And the most sophisticated:

> *"The boy stood by his grandmother, at the doorway, facing the photographer. The woman wanted to show others what is (sic) was like living in a shack town. After shooting a few pictures on the big, clumsy camera, the photographer thanked them*

and went away. He was embarrassed and angry with the photographer for taking the picture. He looked down at his clothes that he wore every day…"

Multiple perspectives revisited

Learning history from primary sources requires both observational and interpretive skills. Through questions 1, 3, and 5 of the visual analysis assignment, students honed their observational skills. But for the stories, they needed to exercise a different skill set to achieve an ability to comprehend — even place themselves in the midst of — the various perspectives of historical figures and events. This developmentally based skill requires a personal investment which rewards the learner by endowing the content with an intrinsic value. Robert Selman describes this perspective taking as "…including an understanding of both the coordination of the perspective of self and other *and* the nature of man as a perspective-taking animal" (Selman, 1980, p. 65). In other words, the learner must not only be able to understand the personal perspectives of historical figures, but must also recognize those figures as actors able to assess the perspectives of others as they make decisions about their actions. Selman observes that this third person and mutual perspective taking are learned around ages ten to fifteen. In-depth perspective taking, in which the learner can place perspectives within a societal or symbolic context, begins to develop as early as age twelve.

As described earlier, one way to impart a sense of different perspectives is to expose students to multiple sources of historical information, both primary and secondary. It cannot be assumed that a textbook or a teacher's lectures, as syntheses of accumulated learning about a topic, will effectively represent multiple perspectives. For able readers, the practice of reading from multiple texts — even those with several challenging features — provides the conditions that can promote historical thinking and more complex understanding of the past (Afflerbach and Vansledright, 2001). The purpose of our unit was not only to teach students to analyze historical artifacts, but also to create personal historical perspectives based on what they had learned from diverse sources. An important element of this plan was to allow students to search the FSA/OWI collection themselves and select an image around which they would express these perspectives. Through this experience they would be exposed to a variety of photographic images yet would have control over the content they would ultimately work with.

It is worth taking a moment to comment on the online environment in which these choices were being made. Students generally searched by keyword (using terms like "Illinois" and "farming") or browsed the list of subject headings (they were prompted to start with the "Illinois" headings). They also scanned through adjacent pictures, similar to the way a library user would scan a shelf of books in a particular section. All groups had selected their photograph by the end of the first day in the computer lab. The bibliographic record for each photograph in the FSA/OWI collection generally includes a caption, typically assigned by the photographer, as well as other salient information, such as the date the photograph was taken, the location, and the name of the photographer. The captions are sometimes

lengthy, providing helpful explanations of the activity in the photo. We were curious to see if students would incorporate any information from the bibliographic record or if they would choose to devise their own explanations.

Thirteen of the twenty-seven stories included factual information from the bibliographic records. Students used the same family names (if available), the same geographic locations, and referred to the same government programs (e.g., FSA support, a WPA job, etc.). In seven stories, the students did not use any of the bibliographic information. The general framework of their stories fit the subject of the photograph (i.e., the story would include a father and son struggling against the wind in a dust storm), but none of the specific details from the bibliographic record were incorporated. In five stories, the students appeared to pick and choose. They selected some of the information from the bibliographic record, but dropped other pieces or invented details that contradicted the caption. For example, a family name would be the same, but the man in the photograph would be a farm owner rather than a tenant; the people would be "refugees" in Bakersfield, California, but there was no mention of them being FSA clients coming from Missouri as was noted in the caption. In the final analysis though, there appeared to be no difference in how students told their stories and the level of information they used from the bibliographic data. They may have used some of these data elements as anchors or to add a touch of verisimilitude, but there seemed to be no correlation between the use of this information and the students' narrative styles, writing skills, or aptitudes for realistic historical representation.

When students were searching for a photograph to select, many of them used the collection's "browse by call number" feature, which allowed them to see surrounding photos from the photographer's negatives. We were interested in finding out if the students took advantage of these adjoining images to ferret out further background information to use in their stories. Direct evidence pointed to only two student groups, who mentioned the accompanying photos in the visual analysis exercise. The students apparently used this feature largely as a navigation tool to browse for photos, again preferring to invent the circumstances of their stories themselves.

Another way to ensure multiple perspectives is to have learners supply them through the discourse and negotiation that takes place during group work. Fasulo et al noted that "…group discussion and joint decision-making are the most favourable conditions for encouraging the use and display of knowledge and causal reasoning, and for imaginative thinking" (Fasulo et al, 1998, p. 137). By exercising skills of argumentation, students must take into account other points of view. The group itself should provide the necessary scaffolding for the cognitive explorations of its members. (Fasulo et al, 1998) Our students were assigned to work in pairs to maximize this potential for developing the richest possible understanding of historical issues. These teams had to negotiate the tension between the photographer's captured moment and their need to generalize to a broader historical explanation and narrative. The teacher and I hoped that the group interaction

would cause productive argumentation, resulting in alternative theories and inferences about the circumstances portrayed in the photograph.

It was hard to tell from this single experience how effective the collaborations were. The students were not being evaluated based on how many individual historical facts they included, but on their ability to portray an overall experience that reflected the history they were studying. However, in the one case where a student missed class and had to complete the assignment alone, his story rather quickly departed from reasonable historical plausibility. In another case, the two students apparently split the story writing task, stapling the two halves together. One partner covered the Depression period and used a story line. The other partner composed a narrative that resembled a biblical genealogy: "Jon was given two children Maya, age five, and Ben, age eight. Nicole went to college and became a biologist. She had one child, Mariel, age eighteen." In both these cases, at least, the absence of collaboration led to a real qualitative deficit.

The role of personal investment in learning history

Educational researchers have long recognized the important roles motivation and personal investment play in student learning. In fact, Levstik and Barton (1996) did not think that Wineburg's historian vs. student (or expert vs. novice) paradigm (Wineburg, 1991) was very useful. Instead, they were more interested in what cognitive processes students used to make sense of history, which generally involved the mediation of a student's social context. Personal history, family background, socioeconomic status, and ethnicity may be just as important factors as prior schooling. Fasulo et al (1998) observed that the children in their study defined Viking artifacts in terms of themselves, overlaying their own perspectives and sensibilities on the past. These behaviors confirmed that personal experience affects the way we see the past and determine what is significant. At the same time, the children also recognized the Vikings' place in time and expressed appreciation for what the Vikings were "already" able to do (Fasulo et al, 1998, p.149). The students created bridges between personal perspective and historical perspective.

Novice historians are also more skilled at writing problem-based essays than traditional history reports (Greene, 1994). This difference is due to students' lack of disciplinary knowledge, leaving them better positioned to write analytically by drawing on a finite collection of resources and personal experiences. Therefore educators should "…give students occasions to write informally as a means for helping them to explore their ideas and for acquiring new knowledge" (Greene, 1994, p.166). This writing-to-learn technique adds to the repertoire of strategies for helping students personally invest in learning history, a strategy we employed for this project.

Since children relate so strongly to material culture, then perhaps history instruction should be grounded in history that can be seen (Levstik and Barton, 1996). Seeing implies exposure to multiple concrete representations and mediated instruction that helps children understand and interpret the representations. The arts in general provide

constructive opportunities to enhance this concrete type of historical understanding. Epstein (1994) makes this connection explicit:

"Whereas essays are appropriate forms for answering arguable questions about the causes, developments, or consequences of historical events, the arts are forms appropriate for representing an empathic understanding of historical experiences in ways which enable educated others to grasp an insight into or empathy for the experiences portrayed." (Epstein, 1994, p. 140)

Students tend to remember historical information better through these experiences because of repeated practice and multiple performances, as in the case of drama. By learning through the arts children become active problem solvers.

Teachers have long employed the arts in teaching social studies and language arts subjects (see Henry, 1995 and Epstein, 1994). Many teachers know that through artwork – including painting, drawing, drama, creative writing, and so on – students can express the qualities of human experience, adding new dimension to their historical understanding. At upper levels, however, use of the arts is not as common, often seen as less academically rigorous. But as a tool in an array of learning experiences, the act of creating a model of history is a powerful, motivating learning activity. Equally significant, for those students who are not as adept at traditional forms of assessment such as multiple choice tests and essays, "…stories or songs enable them to succeed in representing what they have come to know through forms they have the talent to manipulate well" (Epstein, 1994, p.140). These students demonstrate their historical understanding through these alternative methods.

In our setting, creative writing was selected as the most useful art form for encouraging individual investment in what students might otherwise have little personal connection with – the history of family farming. Therefore, the requirements for the story-writing component were designed to give students as much latitude as possible. There was no limit on the literary devices students could use to tell their stories. Most chose a first or third person memoir style. Some wrote diaries, while others used a flashback format. One group wrote from the perspective of a grandson telling the family story, a particularly evocative technique. Many groups used dots or dashes to separate generations or mark the passage of time. Most of the stories fell into one of three general affective stylistic categories: humorous, melodramatic, and realistic. These styles were not mutually exclusive, but one typically dominated the tone of each story.

Imagination and humor

Several groups injected humor, irony or a sense of the fanciful into their work, perhaps to give them psychological distance from the seriousness of the topic.

> *"Monica marries Peter Paul, who is divorced from Mary."*

"He considered himself an outsider, and wanted to go east, where he had heard of the 'stock market of gold.' But of course, at the age of four, these were only dreams."

"Joan's daughter Faure was adopted by Pachelbel, Joan's sister."

On the other hand, humor may have been used as a device to help students feel more connected to the events, yet still have control over them. The two musical examples above could be interpreted as student-created intertext, in which the writers import elements from other media with which they were familiar.

With the modern generation segments of the stories, the students seemed to feel even freer to invent, again perhaps because they had no other visual cue to anchor the narrative. In one story, a daughter becomes an internationally regarded conservationist. In another, the daughter travels to the Persian Gulf as a lieutenant. Some fabrications were written at the expense of plausibility. One story tells of a son who gets married in 1964 to a woman who turns out to be an animal rights activist and convinces him to quit pig farming, then to quit farming altogether. The couple goes on to form an organization called the Animal Rights Society, National, also known as ARSN.

This playfulness probably made the assignment more enjoyable and engaging for many students, and gave them a chance to exhibit their cleverness. An advanced sense of humor is a common characteristic of gifted students (Holt and Willard-Holt, 1995). Other explanations might account for the imaginative spin present in the stories. The parameters of the story assignment were an invitation to invent, not simply report or even analyze data as in traditional assignments. There was also a certain level of comfort with the teacher and the assignment. The students knew their attempts at humor, even silliness, would be acceptable and that there would be no negative consequences as long as they met the basic requirements of the assignment. It might even be said that the students were able to take advantage of a delicious opportunity to share an inside joke. In these safe circumstances, the teacher knew that they were fooling and they knew that she knew they knew. This behavior reflects what Selman described as a "child's developing levels of understanding of persons and their related perspective" (Selman, 1980, p.17). Finally, we also observed, as did Epstein (1994), that a few of the students who were not otherwise the best performers on traditional academic tasks seemed to particularly excel in this atmosphere of artistic creativity.

Of course there were plenty of examples of unintentional humor, due to typing or grammatical errors or to simple naïveté. One pair of students intended a serious title for their photograph: "Life for a Tenant Farmer's Family Living in Oklahoma During the Depression in a Nutshell." Other bloopers would qualify for any teacher's list of favorite student mistakes:

"Especially nobody would want to buy our desecrated farm."

"The depression and dust bowel had hit his family hard."

"In a few years the meat they sell from the cattle flourishes."

"They disclosed Ralph from his inheritance."

"There was a big collision in the stock market."

As mentioned earlier, requiring second drafts or having students proof-read each other's stories would have eliminated many of these gaffes.

Melodrama

A more unfortunate consequence of the open ended nature of the story writing task was that some students either became sloppy in their attention to important detail or lapsed into heavy melodrama. There was often a fine line between clever humor and silliness.

"Mary (the sister of the narrator) was frightened that the Depression would happen all over again. She started hoarding away food and money, and becoming very stingy just like Ma was during the Depression and World War II. Eventually, she died of a massive heart attack when her grandson asked if he could borrow five dollars."

"Alexis had gone to jail for grand theft auto."

"It was nine years before we got a letter from Pa and my brothers saying they had found work. … Ma was always worried about my father and sort of shut herself away from the world. She was always just lying in bed, only getting up to eat or read letters from Pa and write letters to him. … Mary (sister) was always very busy. When she wasn't looking after the baby, cooking, or cleaning, she would come out and help me with the farm. … Pa came home. Alone. Pa was not injured but was shaken up about my brothers' deaths. He quickly got back to work, but Ma was grief-stricken. She stopped eating and eventually starved to death."

Aside from its melodramatic overtones, the last story line is full of logical holes. One wonders where a baby came from, with the father gone for nine years.

The tendency toward melodrama could be considered developmental, reflecting students' lack of life experience. These writing examples bear a resemblance to other mass media fare such as television soap operas or Hollywood movies, models students might imitate when they write about experiences which are vastly different from their own. Their cinematic story lines could also signify a need early adolescents might have to oversimplify complex or unsettling phenomena, minimizing the impact on their own comfort levels – just as the use of humor does.

Realism

The stories which were written in a realistic style were probably also the most "historically correct." This modern farmer's story is steeped in realism:

"If it wasn't for my wife's job, I would never have been able to pay for the farm, equipment, seeds, sprays, and other expenses."

But realism does not preclude the inclusion of humor or the temptation to stretch things a bit.

"Charles got experienced in growing corn. He grew sweet corn and field corn. He started to sell corn to chip companies, his corn was used to make plastic, and he soon married the rich daughter of a senator. They had a daughter named Nancy, who they taught how to farm."

"His daughter, Nancy, was also interested in the farming business, and had her father's ingenious instincts for making money in the farm business. She bought plows and farm machinery, and dug irrigation canals so that her crops expanded. She sold her corn to cattle feed companies, and also to make ethanol. She was also able to grow soybeans in abundance and she soon made enough money to start her own soybean oil company."

Being able to incorporate realism *and* humor might signify the most mature level of historical understanding.

The role of personal investment in learning was probably compromised somewhat by what students thought they were supposed to write. Even with the latitude the students were granted and the resulting wide range of writing tactics they used, the nature of formal schooling is that implicit boundaries are prescribed and outcomes are often forced. Some students clearly responded to what they thought their teacher wanted to hear. In particular, the poverty portrayed in many of the stories was relentless, as it was in the visual analysis section.

"We work and we work for these rich farmer folks and then we come home, if you can call it a home, to raggedy cardboard town where people use newspapers as blankets and old umbrellas as shelter. It is a town made out of garbage. Our money is slowly running out. I have a wife and three children to feed plus myself. Life is harsh."

Part III: Conclusion and suggestions for further research

The range of themes noted during this study can be summarized with a few overarching observations:

Students were able to successfully navigate this archive and make selections that met the historical criteria of the assignment. However, in their analyses, the students tended to view the artifacts from the vantage point of their personal experiences and contemporary time frame, indicating a need for further classroom modeling and discussion.

Students enjoyed creative writing as a technique for learning history. But their efforts needed guidance. Without sufficient background knowledge and directed feedback, they often masked the gaps in their performance by inserting unrelated information or

inappropriate writing devices such as melodrama. However, devices like humor and irony, which were rather prevalent in this sample of student writing, should be explored as a means of increasing motivation and engagement.

As with any new teaching unit, we learned what we would do differently the next time. Most importantly, the students needed a more structured framework around which to build their stories. As novice historians, their knowledge was too incomplete to be able to write with credibility. Merely requiring the students to bring the generations up to the present time was inadequate. The stories needed more points of historical contact and a structure that would propel the narrative toward some sort of closure. In our teacher-expert roles, we could have provided prompts – a list of government programs, historical events and phenomena (e.g., dust storms) – and required the students to incorporate a certain number of these elements in their stories. Students could have selected a second photo from a more contemporary archive and written their stories to connect the generation in the Depression-era photograph to the generation in the modern one. Options like these would still have allowed students to create their own sense of events, but kept them grounded in the historical content — with knowledge they would be *applying*. Such techniques might have prevented one group from using half of the two allotted pages on descriptions of World War II battles and other groups from spinning off into equally irrelevant fabrication. Presumably all the students would have learned the history better.

The use of humor in student writing is worth further scrutiny. Humor and irony may be ways for novices to mask a lack of knowledge and experience in a content domain. Or humor may be an opportunity for students to make the task their own and to demonstrate competence in a skill they *do* have command of. In either case, students are attracted to humor and educators may find it well worth their efforts to incorporate humor into pedagogical practices. Similarly, students use creative writing to make something their own. It is tempting to consider other methods that would elicit the same sense of ownership and expand student learning, such as having students create contemporary artifacts to be "found" by future generations. But as we found out, these projects need to be carefully crafted so students have the structure they need to be successful.

This exploratory examination of student creative writing with primary sources is a beginning. More empirical studies are needed to help us understand how young adolescents learn and assimilate historical information and processes through their interaction with collections of primary sources. Some preliminary conclusions can be drawn. If we are to accept the premise that textbooks offer a limiting view of history, then we must be prepared to support students in their reading of other types of sources. "Embedded [primary] texts and sources may contribute to students' immediate reading experience and to their developing understanding and appreciation of history. Yet, without teacher assistance these texts are extraordinarily demanding of some students." (Afflerbach and VanSledright, 2001, p. 704) But the potential rewards of teacher-assisted student engagement with primary sources are great. Access to multiple representations of

events allows students to directly observe that reality is often in the eye of the beholder. During this engagement, "teachers can help students tolerate some uncertainly amidst variant textual accounts, and they can provide them with the tools needed to evaluate accounts – assessing why bias might exist, looking for corroborative detail across accounts" (Garner and Gillingham, 1998, p. 229).

At the same time, it is important not to trivialize the difficulty of crafting these open but guided learning experiences. Bass and Rosenzweig note that "The construction of effective inquiry activities demands knowledge of the topic, the documents, and the archive, as well as the craft of introducing students to the inquiry process." (Bass and Rosenzweig, 1999, p. 49) Teachers need support to accomplish these many goals. Fortunately, there is a growing community of educators now interested in this approach and poised to offer assistance (see The Inquiry Page http://inquiry.uiuc.edu/).

Rouet et al (1998) argue that it is more important for students to understand why and how participants, historians, and political analysts *argue* about events than to come up with a single explanation of why and how those events occurred. Good historical pedagogy requires the presentation of multiple perspectives, including those that conflict with one another. Teachers can foster this deep understanding by exposing students to the mysteries of an archive and supporting their explorations.

> *"This is about the year 1940, which is right around the end of the Depression. This picture shows that things did not go back to normal immediately and for some never again were the same."*

The students in our class who made this observation about their photograph discovered powerful key concepts, having learned to identify multiple perspectives and historical realities themselves.

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CHAPTER 7

'LIBRARY' FOR SPECIAL NEEDS KIDS

PATTI FOERSTER

Introduction

The culminating activity in the "Magazine Matrix" unit that I taught with a classroom teacher at Vaughn Occupational High School, in May 2005, resulted in some amazing graphics (see the example below). These graphics (others are shown at the end of this paper) reflect the extent to which students grasped the concepts we had been trying to teach. The Magazine Matrix unit involved the use of progressively more complex matrices to help students organize information and evaluate a set of magazines for possible subscription renewal. Not only was the use of a matrix a new activity for these students-all of whom are cognitively disabled, with IQ's between 50 and 70-but coming to the library on a regular basis and actually having dozens of magazines in hand to look through and evaluate, were also new experiences for the majority of these kids.

This unit touched on each of the following tasks that used the 25+ magazines our library subscribes to:

(1) browsing/reading for fun;

(2) using a Table of Contents;

(3) deciphering ads versus articles;

(4) tallying;

(5) finding an average;

(6) comparing subscription prices to cover prices;

(7) navigating to and around a website; (

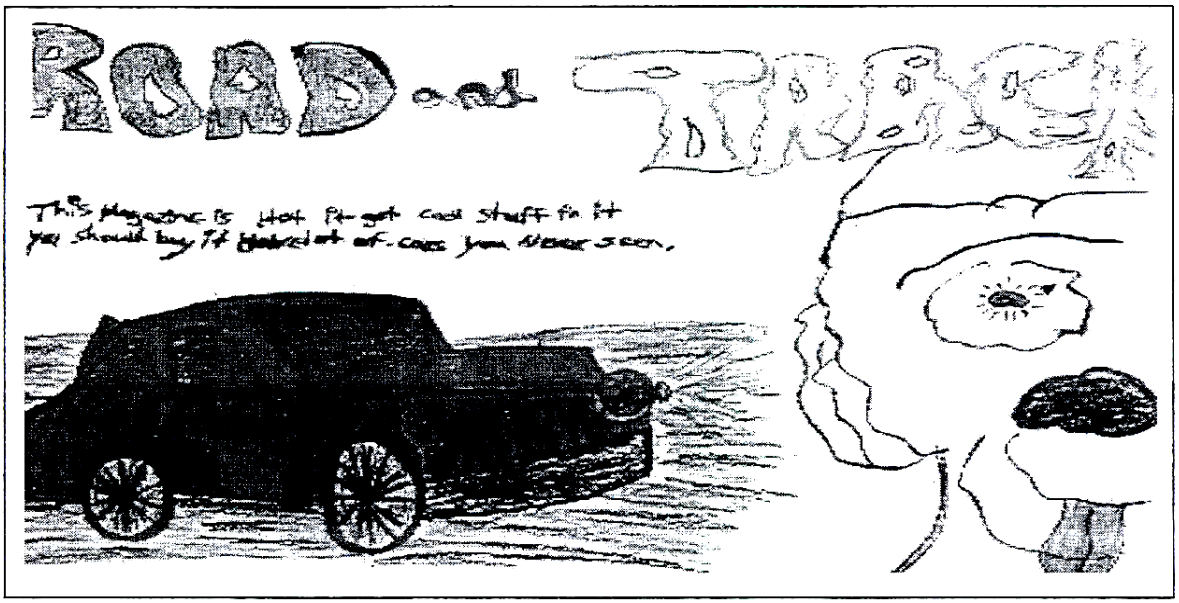
(8) determining the "audience" and readability of particular magazines;

(9) determining preferences;

(10) entering and organizing 'data' in a matrix;

(11) working with a partner; and (

(12) creating an ad that would "sell" a magazine or a product in a magazine. Students came to the library for five of the seven class periods during which the unit was taught, and they worked in their classroom on the other two days. The students who did not graduate at the



tail-end of this unit came back to the library for another two days to start learning how to make a matrix using Microsoft Excel.

This" ad" for Road and Track magazine was created by a Vaughn High School student as the culminating activity in the Magazine Matrix unit. The text reads, verbatim: "ROAD and TRACK. This Magazine is Hot it got cool stuff in it you should buy it Have lot of cars you Never seen. "

This paper discusses the two models that were combined to create this unit, and the applicability of them-actually, the *necessity of using* them – for this particular student population. The Magazine Matrix unit is described, and examples of the matrices from the various daily lessons are shown. The degree to which these matrices can be used to measure the level of understanding gained by Vaughn's students is discussed. And finally, questions about the most appropriate ways to assess gains in library skills made by students – with and without special needs – are posed for consideration by all who share an interest in ensuring we can track the effectiveness of our teaching.

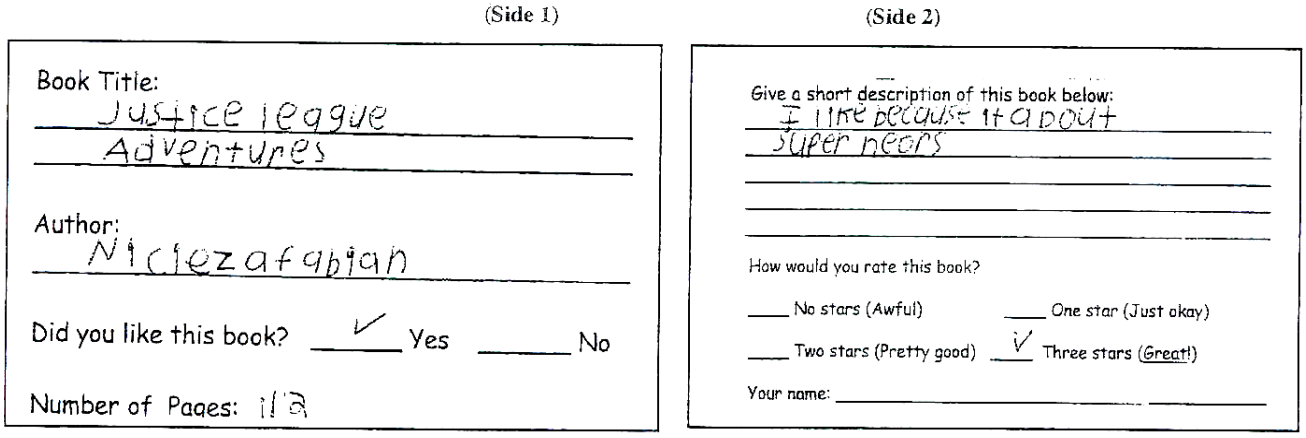
Jacqueline Vaughn Occupational High School

Jacqueline Vaughn Occupational High School serves students with mild to moderate cognitive disabilities[14], who range in age from 14 to 21 years old. The facility is a former AT&T office building, located on the northwest side of Chicago. Enrollment hovers between 200 and 220 students, and the typical student stays at Vaughn for five or six years-or until age 21, whichever comes first. The majority of Vaughn students are multiply involved,

14 "Cognitive disabilities" is the current euphemism for terms such as "EMH" (educable mentally handicapped) and "mentally retarded."

including having visual, hearing, and/or speech impairments, or having physical handicaps that range from moderate to severe. Many of the students also have "organizational deficits"[15] and have difficulties remembering and staying on task without intervention. Other students lack self-control and the coping mechanisms that help form emotional stability.

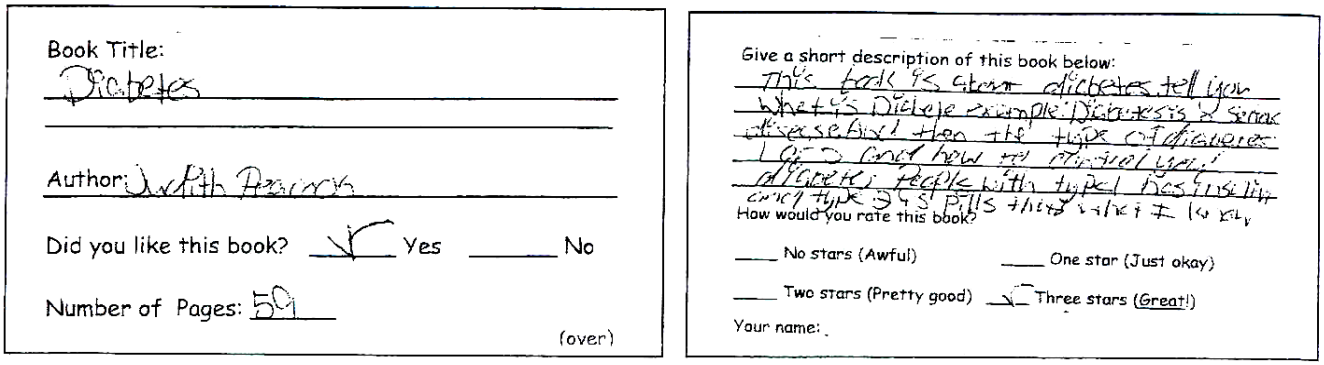
Students function academically at or below the 4th grade level – measured in terms of reading comprehension. Variability in academic skills in notable however: within a single classroom, some students can perform effectively at a 4th (or even 5th) grade level, while others have no discernable reading ability at all.[16] Writing function is also highly variable, not only because many students lack the fine motor skills needed for proper penmanship, but also because students cannot easily relay their thoughts as written words. Students may thus be better able to *talk* about something than to write about it. Below and following are examples of "book review" cards that illustrate the varying abilities of Vaughn students. Students have the option of turning in one of these evaluations when they have read a library book. (When they have read, reviewed, and returned three books, they are entitled to take a free book from the stash of donated books that cannot be used in the library.)



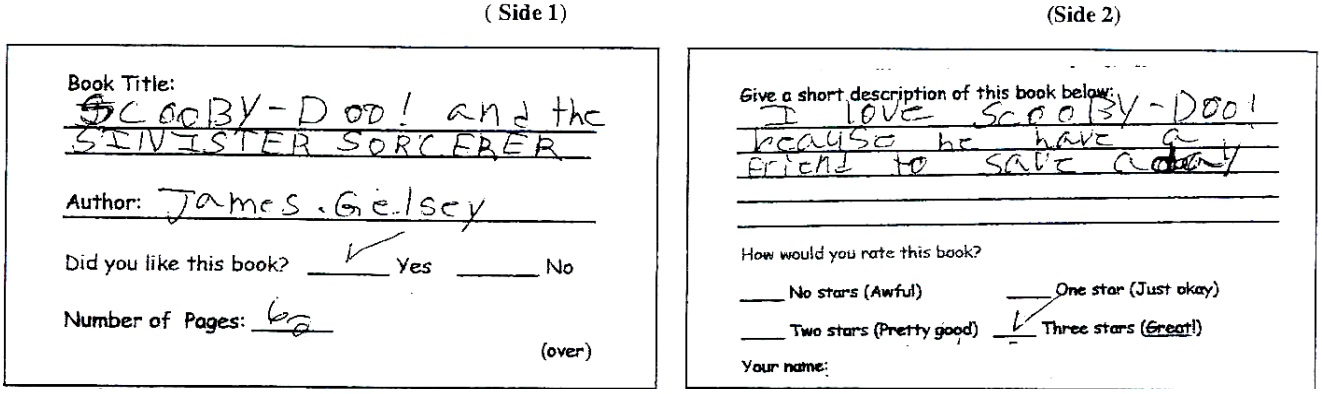
Book Review card for Justice League Adventures. The description reads, verbatim: "I like because it about super heros."

15 Personal communication, Nancy Mayer, Vaughn Principal, in staff discussion, September 2005.

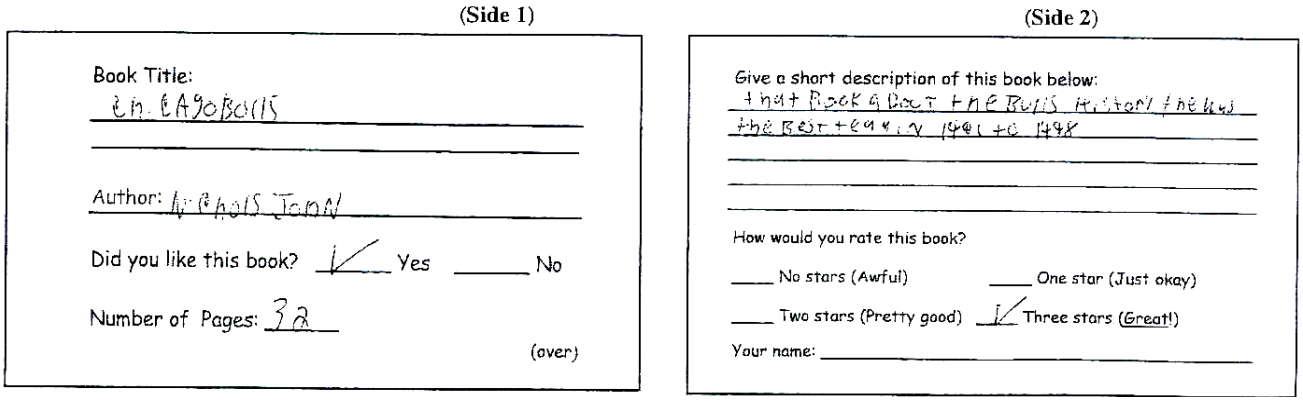
16 Dr. Alice Giacobbe, Northeastern Illinois University, at Vaughn staff In-service presentation entitled, "Differentiation Instruction," September 2005.



Book Review card for Diabetes. The description reads, verbatim: "This book is about diabetes. tell you what is Diabete example: Diabetes is a serias desease. And then the type of diabetes 1 or 2 and how to control your diabetes People with type 1 has insalin and type 2 us Pills thats what I know" This review was written by a student who herself has diabetes.



Book Review card for Scooby-Doo! and the Sinister Sorcerer. The description reads, verbatim: "I love Scooby-Doo! beause he have a friend to save a day.



Book Review card for The History of the Chicago Bulls. The description reads, verbatim: "that Book aBout the Bulls History the was the Best team iN 1991 to 1998"

Although teachers and parents may see growth in reading ability during the span of years a student

attends Vaughn, there is very little *reportable* progress. The Stanford Test is the currently mandated testing instrument, but this type of test does not accurately reflect what the students know or can do. Special accommodations cannot be made for all of the students taking this test, yet the test is clearly

not geared for special needs students who have difficulty with sustained reading; difficulty determining which bubble to fill in for which response; and difficulty retaining the pertinent information they may have gleaned in the long reading passages. Standardized test scores from year to year at Vaughn show frustratingly little change. Academic growth at Vaughn is therefore measured in baby steps: a one-month gain over a year's time is considered a reasonable outcome. Internally, teachers and parents recognize that these tests are not the truest measure of student understanding or learning.

The school's curriculum focuses on teaching functional academics beyond the core and minor subject areas, with an emphasis on occupational development in the areas of business, hospitality, and service. This translates into helping students develop the occupational and life skills needed to work effectively in an office or retail setting, or in the hotel, restaurant, cleaning, and landscaping industries. Each month, emphasis is placed on both a character trait and a social skill in order to enhance the social and emotional growth of the students. The atmosphere at Vaughn is nurturing but oriented towards helping the students become as independent as possible. It is in this setting that Vaughn's library was first opened to students in October 2004. I was hired that September as the first librarian they ever had.

Vaughn's School Library

The 2004-2005 school year was the first year during which Vaughn High School had a functioning library. The facility was the result of a Service Learning project initiated by several students from Northside College Preparatory High School in Chicago. These students and their staff sponsors worked together with Vaughn students and staff for more than a year to garner donations of time, funds, furniture, books, as well as several grant awards, that were then used to create the library. The half-time librarian position was put into the school's budget when the library was officially dedicated in December 2003, although it wasn't staffed until I came in September for the 2004-2005 school year. No clerical help is available in the library.

The current collection of about 3200 books (with about 500 of those still to be processed) is eclectic – a result both of the types of books that were donated and of the specialized curriculum and reading needs of the students. About half of the books were donated or acquired new before I came on as the librarian; another 25% of the books are used

(including most of the paperbacks). And I have acquired the remaining 25% of the books since starting work at Vaughn. The majority of the holdings range from the 1st to 7th grade reading-level, although the top of this range is too difficult for Vaughn students. My acquisitions have focused on high interest/very low reading-level resources, as well as on supporting the school's specialized curricular areas and on the types of books that the students themselves have requested.

Physically, the library can comfortably accommodate a total of about 25 people. Class sizes at Vaughn average about 15, but can be as high as 22 students – usually with one or more individuals requiring a full-time aide and one or more using either a walker or a wheelchair. There are five Internet-connected computers in the library, but there is currently no automation. Students here really require hands-on assistance when they seek resources in the library[17].

Because the 2004/2005 school year was the first year during which Vaughn had a library – and it was my first year as a librarian – the faculty, students, and I all needed time to figure out what our working together could accomplish. Although I am certified as a K-12 librarian and to teach English and earth science at the high school level, I am *not* a special education teacher. I absolutely had to rely on the teaching staff to help me understand what it was like to work with these special needs kids. On the other hand, the teachers and students at Vaughn had never had a library before, and they were not fully aware of the types of learning we could do or the resources that were available to them. Whenever a teacher made a request to bring a class to the library, we first talked about the number of students who would be coming; the academic and physical abilities of the students as well as the number of aides and students in wheelchairs; the unit or topic currently being studied; the type of lesson or resources the teacher would like; and the number of library class periods he/she felt would be needed. This type of discussion-except perhaps for the part about aides and wheelchairs-is what librarians in any type of school would likely have with their classroom teachers.

By the end of the school year, I had collaborated on lessons or units with 14 of the 19 staff members. These collaborations ranged from single-period class sessions, to a unit on the novel *Because of Winn-Dixie* during which the students came to the library every day that I was present for more than a month and a half. Again, collaboration on various levels was absolutely key to whatever "successes" we had in the library. But for the units that I, my co-teachers, and the students found the most interesting and rewarding, I used a hybrid

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17 I have revisited the idea of automation several times during the last year. Vendors have indicated that the technology does not yet exist to customize automation in order to highlight book titles so that finding a book is easier for those patrons who have visual, learning, and cognitive disabilities. While I continue to pursue the acquisition of a customized system – perhaps with audio and visual helps – our students will practice using an OPAC via Internet links to the Chicago Public Library's website.

combination of the AP ACA collaboration model that I had previously developed, and the Matrix Model described by David Loertscher et al under their "Ban those Bird Units!" banner (Loertscher et al, 2005). The two separate models are summarized in the following section.

During April, May, and June of 2005, three hybrid units were taught. For the Jack-and-the-Beanstalk unit, students compared the features of various versions of this fairy tale and summarized their findings in a matrix. The Design-a-Dog unit was a spin-off from our reading of *Because of Winn-Dixie.* For this unit, student teams did research on three different breeds of dogs and stored their findings in a matrix chart. They then took the 'best' features of each breed and came up with a "composite" dog that they thought would be a reasonable mixture. This unit involved book and web research, and the students had to create a picture of their new dog breed. They gave a brief oral report to the class on what they came up with. For the Magazine Matrix unit, which is detailed in this paper, students helped me evaluate the various magazines that we subscribed to so that I could make better decisions about which subscriptions to renew. This unit is detailed in the last part of this paper.

THE MODELS: APACA + MATRIX

APACA

In 2004 when I was still a student at Dominican University, I received a grant to complete the research project entitled, "Ask, Plan, Acquire, Co-teach, Assess (APACA): A Simple, Low-Cost Model of Classroom Teacher/Librarian Collaboration." The funding, channeled from the Institute of Museum and Library Services through Kent State University's Institute for Library & Information Literacy Education (lLILE), was to test the application of the APACA model in nine libraries from the Chicago Public School (CPS) system. In May of 2005, funding was again received to test the model in an additional 15 CPS school libraries. The second grant, called "TLC: Teacher and Librarians in Collaboration," is being administered by Gail Bush, Director of the School Library Media Program at Dominican, with funding from the Associated Colleges of Illinois, a consortium of private universities.

The APACA model was developed to fit the context of limited funding and time – both known to be constraints on collaboration in CPS schools (and in most other public school systems). It grew out of the research I had done in a study of CPS school libraries a year earlier, in which I had surveyed principals to determine which features of school library programs they felt would have the most positive impact on students in their school. The responses indicated that the largest percentage of principals ranked "collaboration of the librarian with classroom teachers" as the feature that would have the most impact – even over such features as flexible scheduling, computers, an enhanced collection, a professional

librarian, and full-time assistance in the library.[18] The components that make up the acronym for the APACA model include the following:

- *Ask* – The librarian asks a classroom teacher to work collaboratively with her/him to enhance an *existing* unit of study. The two think of ways to incorporate information literacy or library skills into a lesson or unit that the teacher normally teaches alone during the school year.

- *Plan* – The classroom teacher and the librarian reformulate the unit to include the information literacy components and other learning enhancements. The two also spend time identifying additional resources that the library could use to support this unit.

- *Acquire* – The additional resources are acquired for the school library. For both the ILILE grant and the ACI grant, a maximum of $350 per school was allocated for this acquisition. However it is also possible that the additional resources can be borrowed from area libraries through reciprocal agreements or inter-library loan.

- *Co-teach* – The unit is taught by the classroom teacher and the librarian. For this model, it is not necessary that the librarian and teacher be together during the teaching sessions. They do, however, have to be 'on the same page', so that both know what the other is teaching and each can present lessons that build on what the students have heard or will be hearing in the other class venue.

- *Assess* – Student products from the unit are reviewed to see how effective the enhanced unit has been. The collaborative methodology used by the librarian and classroom teacher is also evaluated to determine how or if it could be improved the next time around.

The test of the APACA model in the initial nine schools proved that it was effective in helping librarians become better collaborators. The collaborative units that librarians chose to work on with their teacher partners covered a wide variety of subject areas and grade levels. Not all of the schools had flexible scheduling, and yet the librarian and teacher were able to allocate the time needed to co-plan the unit.[19]

With my research on the APACA model already underway, it was fairly simple to apply the model to the situation at Vaughn. However, even at this school where the teachers truly

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18 Unpublished findings of "Impacts of CPS Libraries on Student Achievement," P. Foerster, 2003/04.

19 The Final Narrative Report for this grant is available through the ILILE (contact Christina Sent, ILILE Project Coordinator at csent@kent.edu) or through Dominican University (contact Patti Foerster, Research Associate at foerpatr@dom.edu).

wanted their students to avail themselves of what the library had to offer, I had to be proactive in asking teachers to bring classes to the library. I was given time at staff meetings to discuss resources and to encourage library visits. Because teachers didn't know what could be done in the library, I simply told them that I could develop a library lesson around anything they were doing in the classroom – "even math." In some cases, I asked specific individuals to work with me on implementing some of the units that I myself had in mind; all three of the hybrid matrix units mentioned were among those.

Collaborative time spent planning *together* was fairly minimal: after the teachers had explained to me what they wanted their students to do in the library and what was happening in their classroom, the actual planning primarily involved action on my part. My role at Vaughn is to translate what the teacher wants into an activity that can appropriately engage the students during their library session with me. I expect that this is the case for the majority of librarians who have or will be using the APACA model – or any type of collaborative methodology.

I acquired the books or resources we would need from other libraries or through outright purchase (when I had the funds available). For example, for the Jack-and-the-Beanstalk Matrix unit, I purchased a dozen or so versions of this fairy tale, and I also borrowed multiple copies of the story from neighboring suburban and Chicago libraries. For the Design-a-Dog unit, I borrowed several dozen different books about various dog breeds for our students to use. I also purchased some dog books for Vaughn's library.

These types of collaborative units were invaluable for learning which libraries had resources that were suitable for borrowing, and which resources I would eventually need or like to purchase. Vaughn's collection now reflects to a much greater degree the curricular needs of the students than it did when I first started – although I am aware that we still have a long way to go before we will have acquired all that I would like to see in the library. But it is clear that a corollary phenomenon occurs when you are successful at providing resources to support what teachers are doing in their classrooms: *the more you provide, the more teachers ask you to come up with.* And this is a very good thing. In my own original APACA study, a survey of a small sample of teachers was used to elicit information about why teachers didn't think of using "library" as a subject area for collaboration. More than a quarter of the respondents indicated that the reason was because "the library doesn't have the resources students need."[20] Collaboration allows ideas to be shared about library resources to ensure that the library *does* have what students need.

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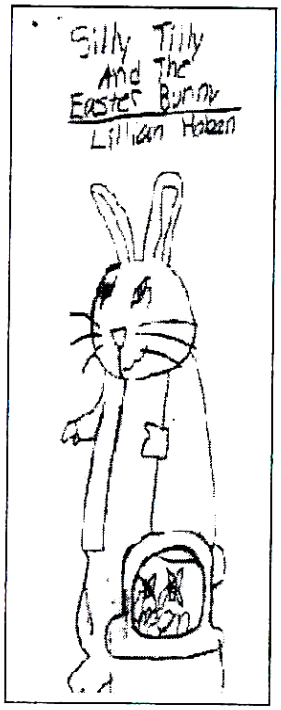
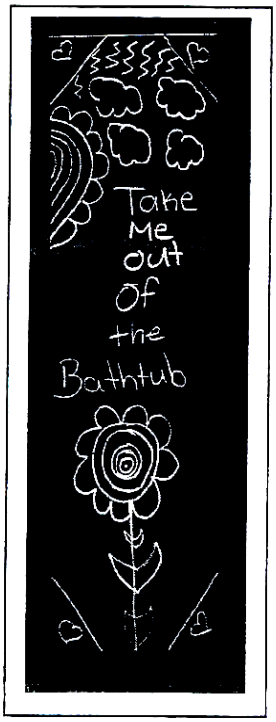
20 Table 4 – Reasons for Lack of Collaboration with Librarian in the Final Narrative Report for Ask, Plan, Coteach, Assess (APACA): A Simple, Low-Cost Model of Classroom Teacher/Librarian Collaboration. See footnote 6.

For the *co-teaching* phase of the APACA collaborations at Vaughn, teachers were always with me when their classes came to the library. I was essentially the "lead" teacher of the team when the lesson was about library skills. In other cases however, there was a 50/50 split between who did what amount of teaching for specific classes. It was also sometimes the case that the teacher actually had the greater degree of input during a class's visit to the library and that my role was more like that of a support resource person in the background. In general, legal class-size restrictions and student/teacher ratios in this special education environment set the parameters for co-teaching to a greater degree than might occur in a general-education high school. That's fine, because although I am fairly comfortable teaching alone in our special education setting, I am nonetheless a brand new teacher, and I welcome all the mentoring and assistance from other teachers that I can get.

Finally, for the *assessment* piece of the APACA model, my thinking has evolved away from using traditional markers of "success" in the library, such as circulation statistics and user visits – or even from the supposition that what I do might somehow affect standardized test scores. As already mentioned, such test scores are not in any way an accurate reflection of growth in student abilities at Vaughn. Then too, because the library is so new and students are basically non-readers, circulation or patron visit numbers would be appallingly low. But as a new teacher in a completely new facility at Vaughn, I need to know the degree to which students understand what I am trying to get across. My concerns about measuring effectiveness are about me as a teacher; my students as special needs learners; and the "library" as it becomes an integral part of the educational framework in this school. I need feedback – and fast.

Vaughn students have difficulties dealing in the abstract or the theoretical. And as mentioned previously, they have limited (but various) reading and writing abilities, and they have difficulties staying on task and being organized. They do, however, tend to be highly visual, and although not all students are equally gifted in terms of their artistic abilities, most of these kids become fully engaged when an activity involves drawing, coloring, or using symbols instead of using text words and writing. For example, some of the students who had tried to fill out the "book review" cards shown at the beginning of this paper found the task of writing down their thoughts extremely frustrating. When I offered them the opportunity to create a bookmark that *showed* something about the book instead, the results were interesting and rather charming. Several of these bookmarks are shown following:





Whether Vaughn students – or I myself – operate primarily in a 'visual' and 'kinesthetic' learners modality[21], I need the students to complete activities that result in some sort of artifact when they are in the library, so that these artifacts can help me gauge what the students are understanding. I need the students do something hands-on and manipulative – whether it is folding papers into four squares *(which is truly a difficult task for some of our students)* and then putting a picture or word into each square, or paging through books to find the "Table of Contents" and the "lndex" – so that when the movement stops, I can glance around to see if everyone is on the same page with me. Because these kids cannot always organize what they are thinking into appropriate words, I also need a way to see if

21 Two of Howard Gardner's Multiple Intelligences.

they are 'getting it' even if they are using as few words as possible. And that is why the Matrix Model works well for them.

Matrix Model and 'Ban those Birds!'

When David Loertscher spoke at an in-service training seminar for CPS librarians in April 2005, he shared his view that students in the library need to do more than simple cut-and-paste computer research. While that in itself would actually be a significant accomplishment for many of Vaughn's students, there are other more pressing learning issues that need to be addressed in our library.

Vaughn's students for the most part do not advance to venues of higher education once they graduate from our school. Some students have jobs immediately upon their graduation, but many, sadly, leave the education system with no real plans for the future. As the librarian for these students, it is my responsibility to ensure that when they do leave Vaughn, they have a working knowledge of the various types of information they will encounter in their daily lives. They need to know what kind of information is available 'out there' and where/how to find and use it. While this is not different from what librarians at other schools do, at Vaughn the students do not always have even the most basic awareness of the wide variety of informational resources available. For those students who are in their last year at the school, this may mean that library learning has to start at Square One and then compress into single units what may have taken years for students in other educational settings to absorb.

The Magazine Matrix unit grew out of my need to renew subscriptions in our library and from my awareness that senior-level students should be media literate insofar as magazines are concerned. By creating matrix charts that incorporated various evaluation criteria (e.g., price, number of ads, readability, audience, etc.) that the students filled in, we could effectively kill two birds with one stone. Not only did the unit deal with a true life question that I needed to address (i.e., *Which magazines are really appropriate for our students and thus should be renewed for next year?),* but it provided a way for students to learn about various magazines and then to visually organize their findings about them into a chart.

For more than half of the 30 or so students who completed this unit, this was the first time they have been in Vaughn's library. For equal numbers of them, it was the first time they had seen some of the magazines our library subscribed to. And for virtually all of the students, this magazine unit was the first time they had ever even considered such questions as: What kinds of information are on the front cover of a magazine? What is the difference between an ad and an article? How can ads be helpful? How does the 'table of contents' of a magazine work? What is the benefit of buying a subscription to a magazine? How should we choose which magazines to buy for the library? and on and on. Loertscher

and his colleagues indicate that matrices help students make decisions based on "data rather than on opinions or whims"[22] Students can see patterns and make comparisons when information is organized into a matrix; for special needs students, this is a crucial benefit of using this format. And while the authors of the 'Ban those Bird Units!' stress high quality data in every cell of the matrix, more important to me at Vaughn is simply ensuring that the students understand which kinds of data belong in which cell. I can easily figure out if students understand what they are supposed to be doing, just by looking at how they are filling in their chart. The matrix thus provides a means of assessing understanding on an ongoing basis.

The students seemed to enjoy filling in the various matrices that were used for the Magazine unit. Once they understood the concept of putting one piece of information into one box, and that each row and column stood either for a different magazine or a different feature of that magazine, they had no trouble working along through this unit. It may even have been the case that completing the particular matrix for the day gave the kids a certain sense of accomplishment.

Details of the various matrices used for this unit are explained in the following section.

Magazine Matrix Unit

The "Magazine Matrix" lessons were used in three senior-level[23] English classes in late May/early June 2005. The three classes were relatively small, with 8 to 12 students in each. The students came to the library for five days, and they continued to work on this unit in their classroom for two additional days. Nearly half of the students graduated in June 2005. The remaining students came back to the library for another two days (during graduation activities for their classmates) to begin learning Microsoft Excel, which was used to create the various matrices for this unit.

Day 1

Discussion centered on two things: FIRST, what advertising is/does and the kinds of ads the students should be familiar with; and SECOND, what a matrix is and how it can be used to organize information.

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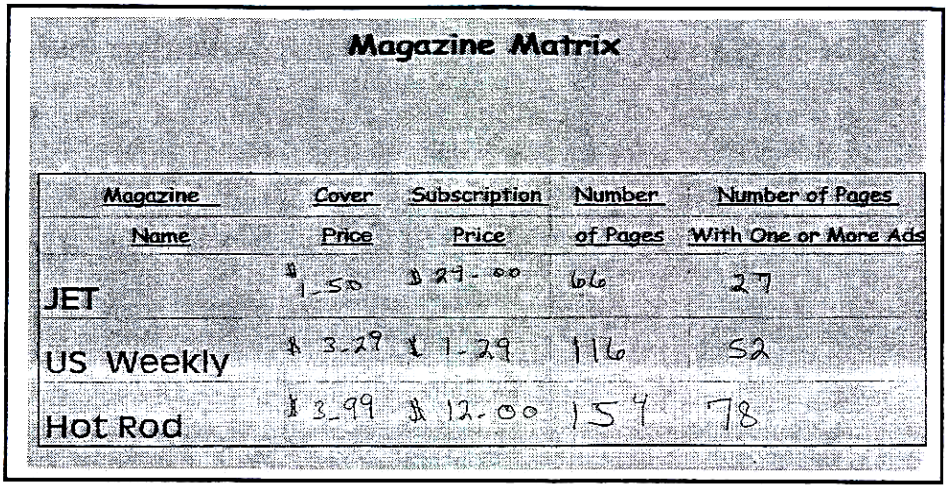
22 Loertscher, David et al.. Ban those Bird Units: 15 Models For Teaching and Learning in Information-rich and Technology-rich Environments. Salt Lake City, UT: Hi Willow Research and Publishing, 2005.

23 Although students may be considered to be at the senior-level at Vaughn, they may actually be 5th or even 6th year students. These students are also called "Senior Seminar" students because their final year(s) at Vaughn focus more fully on occupational training, which is taught in a seminar format.

We talked about where and when students see ads. Students volunteered examples, such as on a bus or on the CT A (Chicago Transit Authority) trains, on a billboard, in the movie theater before the movie starts, on TV, and on the computer. We talked about how magazines also have ads, and students were given copies of *Jet, US Weekly,* and *Hot Rod* to look at while we talked. (Seeing these magazines was a "first" for some of the students.) Students were asked to identify what was on the front- and back-inside covers of one of their magazines. On the board, we listed the kinds of ads that students found (e.g., cigarettes, cat food, alcohol, makeup, various kinds of cars, a cable TV station, etc.). We talked about whether the students "liked" the ads; about products they themselves were likely to purchase; and about how advertising can sometimes be useful.

In order for students to fill out the first matrix (see below), they had to have some knowledge of the "subscription" and "cover" prices charged for magazines. (These concepts were yet another "first" for virtually all of these students.) We showed the students where and how to find this information. We then discussed whether the cover price or the subscription price would provide the best value – but we also talked about the difference between paying 'up front' vs. spreading costs over time. Students also needed to know how to "tally" as a way of simplifying their counting. This process was reviewed so that they could complete the Magazine Matrix. A sample matrix is shown below, as filled in by a student.

[NOTE: All matrices have been greatly reduced in size to fit into this document. Vaughn's students find large, bold fonts and lots of white space the most comfortable for writing. All of the matrices were printed on 8 ½ X 11-inch paper.]



Magazine Matrix

Magazine Name	Cover Price	Subscription Price	Number of Pages	Number of Pages With One or More Ads
JET	$1.50	$29.00	66	27
US Weekly	$3.29	$1.29	116	52
Hot Rod	$3.99	$12.00	154	78

Matrix 1 – Day 1 of the Magazine Matrix Unit.

This first matrix was used to help students understand how to use matrices for organizing information. The class worked on this matrix as a group

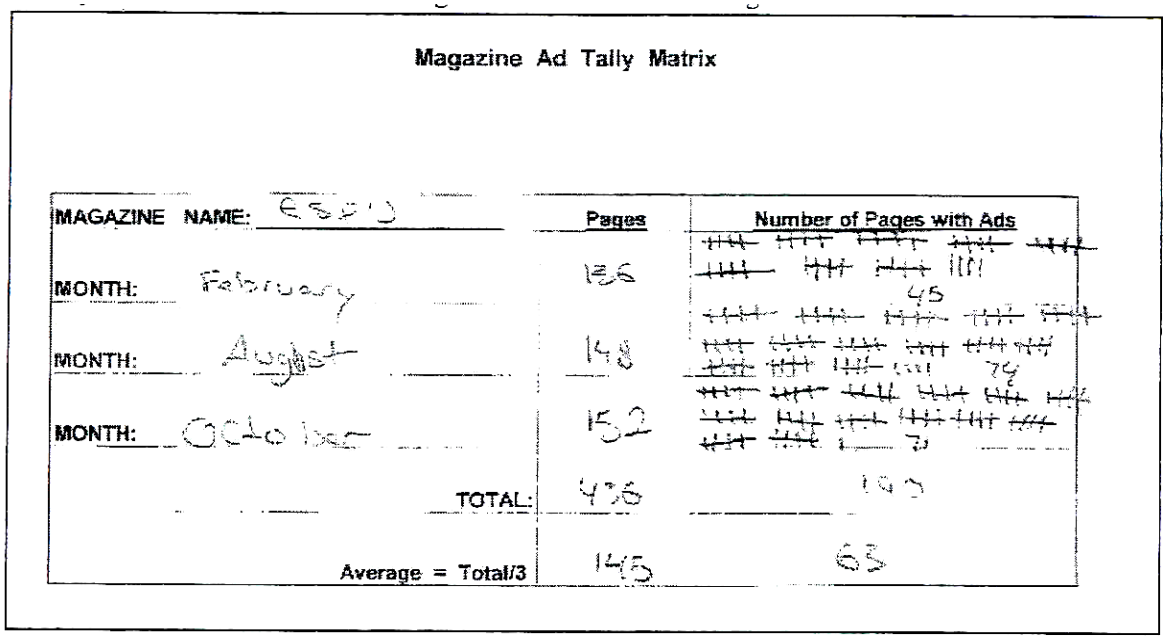
Days 2 and 3

The goals on Days 2 and 3 were to: FIRST, reinforce the idea of using a tally for counting; SECOND, reacquaint students with "averages" (calculators were available); THIRD, help students recognize ads in various types of magazines; FOURTH, have students practice filling in a matrix; FIFTH, have students work together to complete an assignment; and SIXTH, let students experience navigating to and around two different websites.

Students were divided into small groups (two or three students per group). Each group was given two sets of magazines that they would evaluate. The two kinds of magazines were similar, e.g., *Elle Girl* was paired with *Cosmo Girl; Sports Illustrated for Kids* was paired with *ESPN; Hot Rod* and *Motor Trend* were paired; *Ebony* and *Essence* were paired, etc.. To the extent possible, all groups of students were given magazines from the same three months to help negate seasonal differences in advertising levels.

In addition to their sets of magazines, the students were given two new matrices to fill out – one matrix for each kind of magazine that they had. The students had to go through all three months of their particular magazines to see how/if the number of ads fluctuated by season, and to come up with an average number of ads for each kind of magazine. One person in the group was supposed to turn the pages in the magazines and look for ads, and the other person was the "tally" keeper. Students were to take a turn at doing both functions. Groups could work at their own pace.

The tally matrix for students evaluating *ESPN* is shown following.



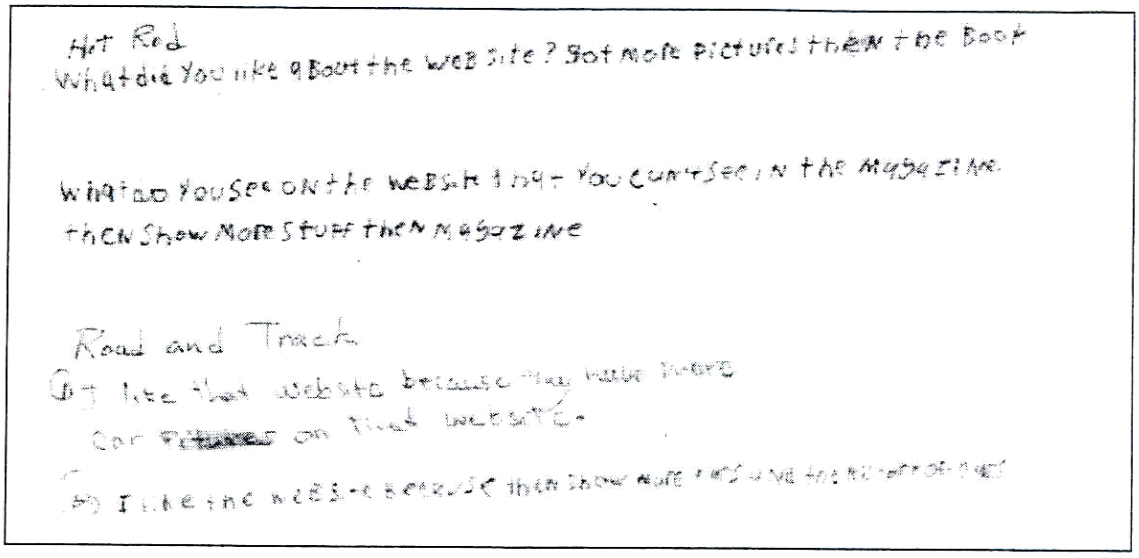
Magazine Ad Tally Matrix

MAGAZINE NAME: ESPN	Pages	Number of Pages with Ads
MONTH: February	136	45
MONTH: August	148	74
MONTH: October	152	76
TOTAL:	436	195
Average = Total/3	145	65

Magazine Ad Tally Matrix-The students that worked on *ESPN* magazine also evaluated *Sports Illustrated for Kids.*

While the students completed this set of matrices, my co-teacher and I circulated to be sure that the students knew what they were supposed to do – and especially to verify their understanding of "ads" vs. articles. We also could readily tell if the students knew how to come up with the averages required to fill out their matrix; we gave assistance as needed. Because a few of the groups were able to complete this ad-counting task sooner than others, students were told to visit the websites for each of their magazines. We discussed how to find the web address on the covers of the magazines. Assistance with logging onto the websites was offered as needed.

Below are several examples of comments students wrote about the websites they visited. Students were asked, "What did you like about the website?" and, "What do you see on the website that you cannot see in the magazine?" Students were expected to get to the site and to maneuver to one or two of the corresponding pages that interested them.

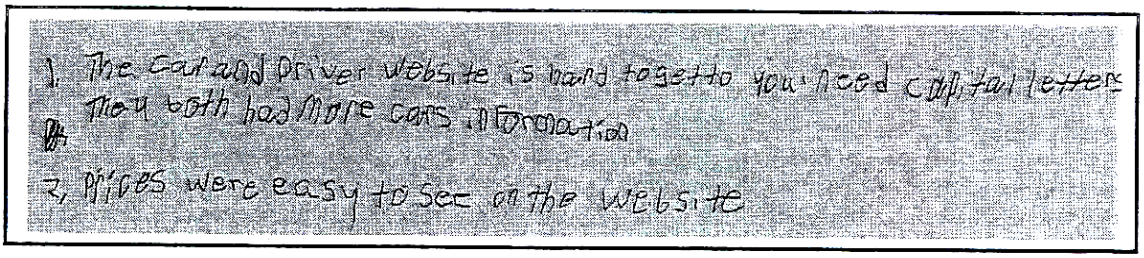


Website comments for the *Hot Rod* and *Road and Track* magazine websites.

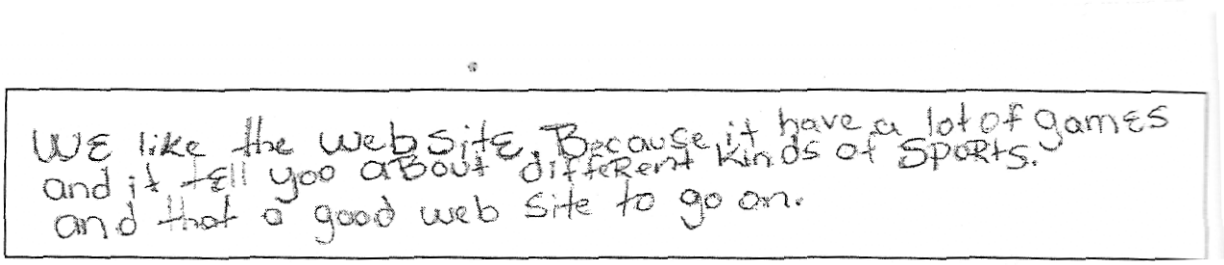
Two students took turns writing the comments. The *Hot Rod* comments read, verbatim: "1. What did You like aBout the WeBsite? got more Pictures theN the Book What do you see oN the WeBsite that you caN't see iN the MagaziNe. theN show more stuff theN Magazine." Comments for *Road and Track* read, verbatim: "

(1) I like that Website because they" have more car Pictures on that website.

(2) I like the Website because theN show More cars aNd the history of cars."



Website comments for the *Car and Driver* and *Motor Trend* websites, which read, verbatim: "1. The Car and Driver website is hard to get to You need capital letters. They both had more cars and nformation. 2. Prices were easy to see on the website"



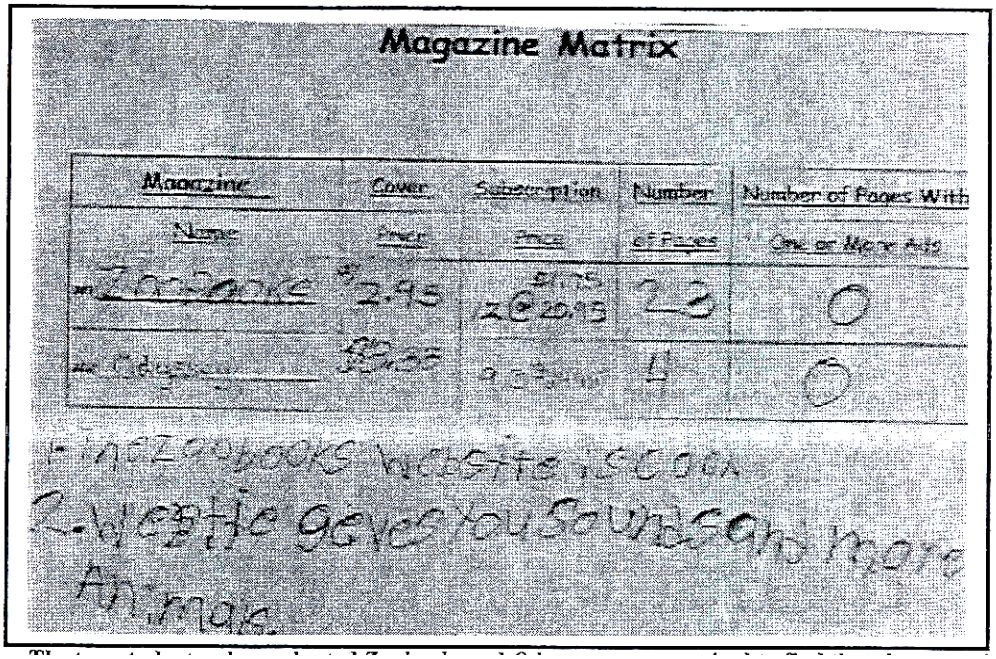
The website comments for the *Sports Illustrated for Kids* website read, verbatim: "We like the website Because it have a lot of games and it tell yoo aBout different kinds of sports. and that a good web site to go on. "

Days 4 and 5

The goal on Days 4 and 5 was to have students gain additional practice filling in a matrix. This time, however, information from their prior matrices had to be transferred onto a new matrix. Students also had to think more expansively in order to fill out this matrix: They were asked to determine who the audience for their magazine would be and how hard it was to read.

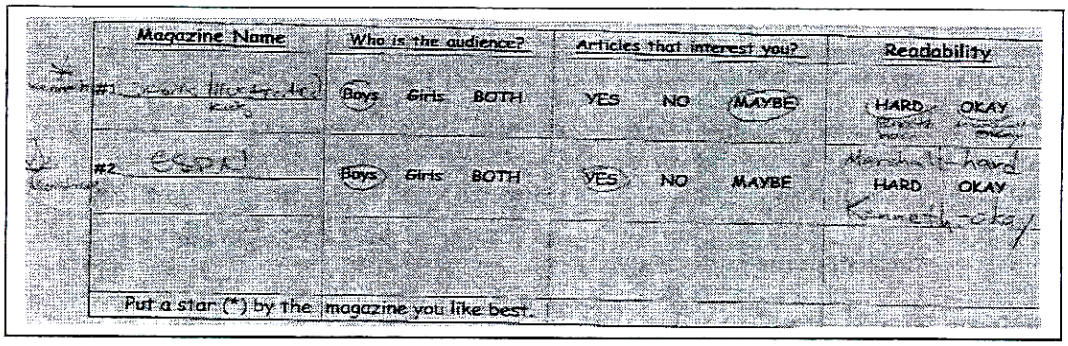
Again, while students completed this "pink" magazine matrix, my co-teacher and I worked with individual groups as needed. In order to determine the readability of the magazines, the students had to actually try to read an article. They could answer separately whether they thought the article was "hard" or "okay" to read (see the Side 2 example shown below). Although I generally gave the boys the sports and car magazines to evaluate, a few of them did spend some time looking through the entertainment magazines as well. The girls, however, were not interested at all in the sports or car magazines.

(Side 1 of matrix)



The two students who evaluated Zoobooks and Odyssey were surprised to find that the magazine didn't have any ads in it and that there was no discount for ordering a subscription. The comments on the two websites are also shown on this matrix, because these students did not work quite as fast as some of the other teams. The Zoobook comments read, verbatim: “The Zoobooks website is cool.” The Odyssey comments read, verbatim: "Webstie geve you sounds and more animals**."**

(Side 2 of matrix from another team of students)



Even through Kenneth found *Sports Illustrated for Kids* "Hard" to read, he still liked it better than *ESPN,* which was "Okay" for him to read. On the other hand, Marshall found *ESPN*

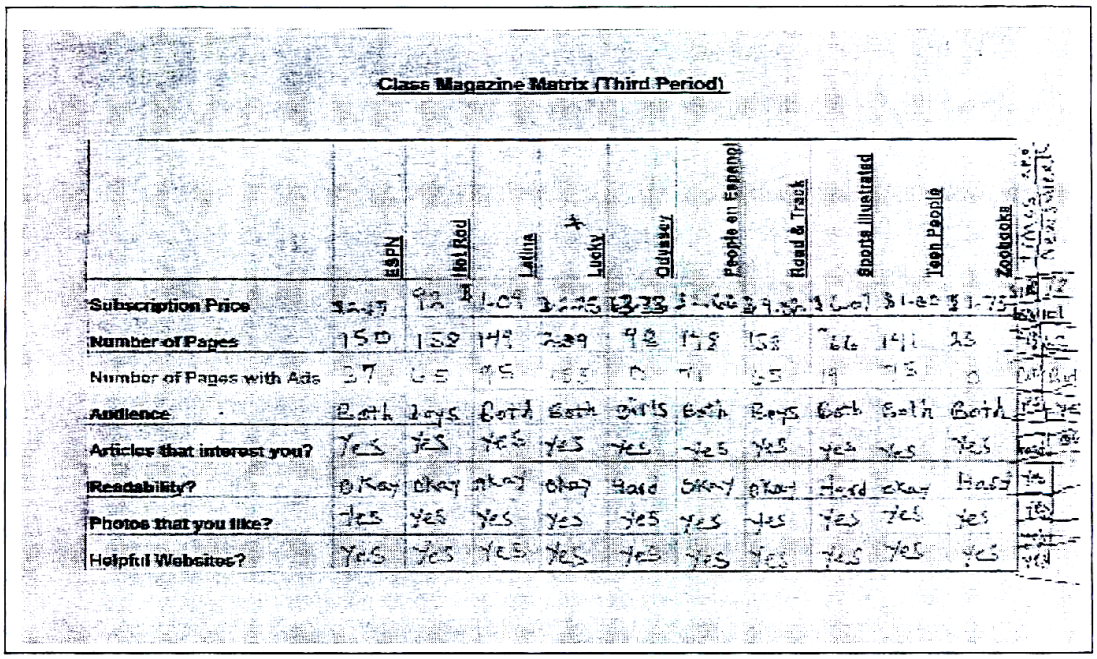
"hard" but he liked it best compared to *Sports Illustrated for Kids,* which had an "okay" readability for him.

Day 6 (in the classroom instead of the library)

The goal on this day was for the students to combine all of the information they had gathered by teams, and put it onto one giant matrix.

I met with the classes on this day in their classroom because of some scheduling issues with the library. On an overhead projector, I showed the students a matrix that contained spaces for each of the magazines that their particular class had evaluated. Together, we worked to fill in the various boxes until the matrix was complete. Each student was given a copy of the sheet to fill in as we worked. The finished matrix, completed by one of the students, is shown below.

After we had completed the Class Matrix, students were asked to specify their preferences. On the overhead, I put a "star" by the magazines they indicated. In renewing the subscriptions, I tried to keep as many of the magazines chosen by the students as possible.



Class Magazine Matrix (Third Period)

	ESPN	Hot Rod	Latina	Lucky	Odyssey	People en Espanol	Road & Track	Sports Illustrated	Teen People	Zoobooks
Subscription Price										
Number of Pages	150	158	142		98	178	158		141	23
Number of Pages with Ads	37				0					0
Audience	Both	Boys	Both	Both	Girls	Both	Boys	Both	Both	Both
Articles that interest you?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Readability?	Okay	Okay	Okay	Okay	Hard	Okay	Okay	Hard	Okay	Hard
Photos that you like?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Helpful Websites?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

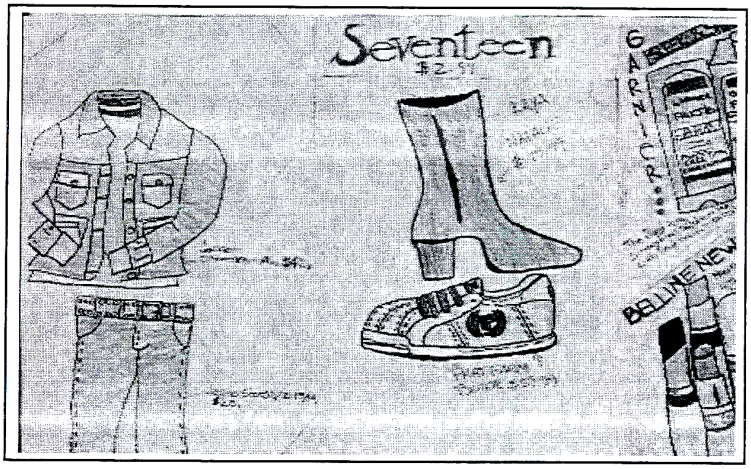
This is the Class Magazine Matrix for the 3rd period English class – as filled out by the student who evaluated *Lucky.* This student was able to add the additional matrix spaces needed to incorporate two other magazines, *Time* and *Newsweek* into the matrix. For these students, getting to this point in the Magazine Matrix unit was a tremendous accomplishment. Although some of the numbers and preferences do appear questionable,

we charted whatever the students themselves came up with. In another venue, I would ask for students to challenge some of the findings.

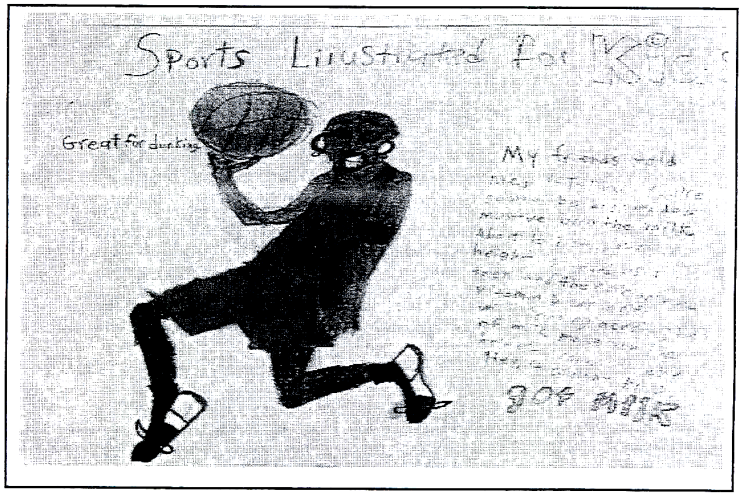
Day 7 (in the classroom instead of the library)

As the "culminating" activity for this unit, the students were asked to create an ad that would either sell the magazine they liked the best, or sell a product in that magazine. The goal was to give the students a way of expressing their ideas about advertising and magazines. Each student was given a large sheet of construction paper to work on, and they used colored pencils to color their artwork.

Here are several samples of the ads Vaughn students created.



Ad for *Seventeen* Magazine

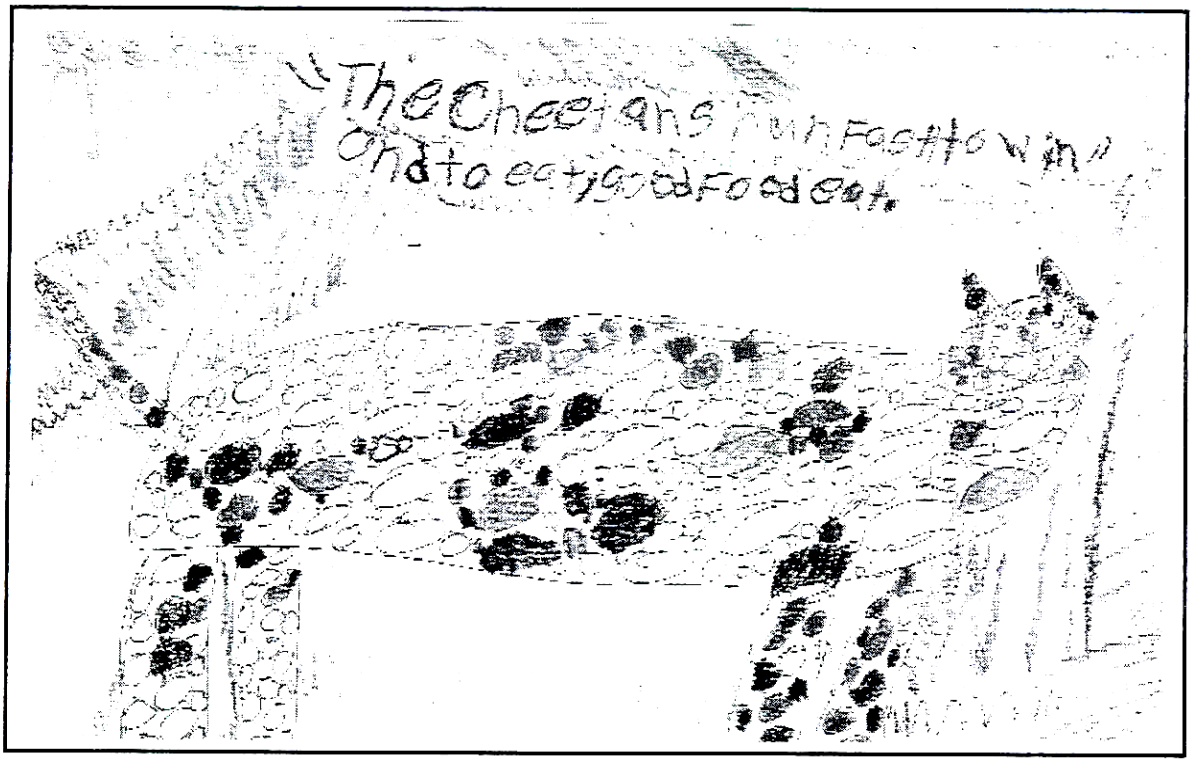


Ad for *Sports Illustrated for Kids*

Caveats and Questions

The American Association for Higher Education indicates that assessment is most effective when it tests learning as "revealed in performance over time [so that] change, growth, and increasing degrees of integration" can be seen.[24] When I think back about where the students began with this Magazine Matrix unit – considering especially that some students had never been to Vaughn's library before, and none of them had ever attempted to "evaluate" a magazine and put their results into chart form – and where they ended up – with a complex matrix that showed data on 12 different magazines, and beautifully illustrated advertisements – I am pleased with the results.

I know that *while these kids were working on this unit,* they grew in their understanding of magazines and they became at least somewhat media literate: They learned things they didn't know, such as cover prices, subscriptions, ads, kinds of articles, audiences, and



websites. They also revisited some math activities they may have already learned, such as how to do tallying, and how to find an average. They became familiar with a new organizational method – the matrix – and they practiced charting data until they could

24 Astin, Alexander et al.. "9 Principals of Good Practice for Assessing Student Learning" on the American Association for Higher Education website, http://www.aahe.on!/assessment/principl.htm , accessed on 6/11/2003.

complete a huge and complex matrix that used information from teams of their classmates. Finally, they showed their creativity by developing an ad that they thought would convince someone to buy their favorite magazine or a product in that magazine. All this I know took place for these kids last May and June, and I could see their understanding evolve as the unit progressed. I have the artifacts to prove it.

But these *are* special needs kids. I don't know how much of what these students learned during the Magazine Matrix unit they will remember. They have cognitive disabilities that limit the retention of knowledge they may have previously gained. Their processing capabilities constrain what will stay in their head and what will have to be learned again, and again, and then again over time. The classroom teacher that I worked with on this unit retired at the end of June last year, so I can't ask her what she thinks these students still know from what we taught them. Then too, many of these students graduated in June so they aren't around to ask anymore either.

But some of these students will be returning to Vaughn with the new school year. Some of them will eventually drift into the library, and I will be curious to know what they think of our collection of magazines going forward; I would like to see who can still fill out a matrix – especially under alternative circumstances, such as in a unit that deals with something altogether different from what was already covered in the magazine unit. Would these students be able to devise a matrix on their own, if they had some form of data that needed to be compared? Could they point to the place in a magazine where the subscription price can be found if their mom or dad wanted to buy the subscription for them? Do they still know how to tally? Can they tell the difference between an ad and an article? Do they remember how to find out where the magazine's website is?

Maybe it isn't quite reasonable to expect that these special needs students could retain the information they learned about matrices and magazines over the long term – or even over the summer. And of course it isn't appropriate to place the burden of assessing the level of information retained on the standardized tests these students will take later during their school year. But what about kids who aren't cognitively disabled? How would we track the 'library' learning that they retained? What should we be using to assess, further down the road, their understanding of the skills they were taught in the library? Can we really assume that standardized test scores represent a snapshot of what even these students learned from us – or are connected in any way to whatever information literacy skills they may have gained? Supposedly, the best forms of assessment are ongoing – not episodic.[25] But how can we as librarians, for any and all types of students, track our effectiveness both while we are teaching and later on when the students are out from under our influence ?

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25 Astin et al, Ibid.

I don't have the answers yet. I know what seems to work with my students at Vaughn Occupational High School in Chicago. But I'm not even certain of the results beyond what I taught before the summer. I can't say for sure that any of the students who were with me when we did the various hybrid matrix models still even know what a matrix is or how it is useful. I'll be pursuing the answer to that in the coming months during the course of the 2005-2006 school year.

And I am assuming that there are researchers and practitioners in the broader realm of school librarianship who know a great deal more about effective assessments than I do. I welcome their input.[26]

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PART 3

COLLABORATING TO ENHANCE LEARNING

CHAPTER 8

THE COMPLEX CHARACTER OF COLLABORATION CURRENT PRACTICE AND FUTURE CHALLENGES

ERIC M. MEYERS

ABSTRACT: Collaboration has long been an important issue in teacher-librarianship. Despite numerous studies on the topic, collaboration as a proven practice remains elusive. Researchers have identified success factors which should permit greater collaboration, including principal support, common planning time, and a culture of collaboration among classroom teachers. This paper explores the collaborative instructional activities of teacher-librarians who work in such progressive pedagogical environments. It describes current instantiations of practice, as well as identifies the persistent barriers which make "true collaboration" an infrequent occurrence. The paper concludes by asking, in light of these barriers, whether researchers should be setting up collaboration as defined in the literature as the "gold standard" of practice. It suggests that higher level collaborative efforts may have greater impact on the teaching and learning process, and proposes that teacher-librarians might better serve the cause of information literacy by managing instruction rather than delivering it directly.

Introduction

A growing body of research literature connects the effective performance of teacher-librarians to student achievement (Champlain & Loertscher, 2003; Lance, Rodney & Hamilton-Pennell, 2000; Lonsdale, 2003). Key to that effective performance is collaboration, most notably as an instructional partner in the teaching and learning process (AASL/AECT, 1998). As pedagogy incorporates a greater range of information resources and technologies, collaborative partnerships with teacher-librarians will become critical to the success of educators and students alike.

Collaboration is a complex situation involving the interplay of actors, contexts, and task demands. Many research studies on collaboration, however, often fail to fully explore this complexity. The research described in this paper is part of a larger examination of school libraries in the midst of reform. By examining reform contexts, we gain insight into the leading edge of pedagogical practice, which may permit the design of innovative practice models. This paper will explore the current state of collaborative practice in six pedagogically progressive high schools. In doing so, it seeks to identify both the

affordances of collaboration—those attributes which make it a worthwhile pursuit—as well as the persistent barriers that prevent it from being realized.

Literature Review: Collaboration in School Libraries

Collaboration has been variously defined as "working in alliance" (Johnson & Johnson, 1992), "communicating" (Clark & Brennen, 1991), "constructing a joint problem space" (Teasley & Rochelle, 1993), and different combinations of these, among others. It is important to note, however, that no general or comprehensive theory of collaboration exists that may serve as a starting point for researchers from disparate traditions wishing to study collaboration, its emergence, processes, and effects. A number of authors have outlined what should be in a general theory, and these are worth noting. Woods and Gray (1991), in discussing collaborative alliances in the business domain, suggest that any comprehensive theory must address:

- the meaning of collaboration itself;
- the auspices under which collaboration is convened (how does collaboration emerge?);
- the implications of collaboration for complexity and control (does collaboration make work easier or more difficult?); and
- the relationship between self-interests and collective interests.

In the absence of a general theory, each knowledge domain has constructed its own patchwork approach, defined its own variables, and rather selectively used the research of other fields (if at all) in doing so. Studies of collaboration in the domain of school librarianship have often addressed the second, third and fourth points of this general framework in tackling the first – the meaning of collaboration itself. The general assumption is that collaboration is always beneficial; this principal assumption often results in uncritical analyses, and runs contrary to other research findings on collaboration.

Steiner (1972) coined the terms *process gain* and *process loss* to describe the effect of groupings on individual processes. Process gain occurs when a collaborative effort is greater than what two or more individuals could achieve alone. Process gain can be the result of synergistic combinations of skill and knowledge, pooling of resources, group learning, or positive affect. Process loss, conversely, is the decrease in productivity or efficiency, or the loss of motivation or momentum ascribed to coordinating one's actions with others. A number of studies since Steiner's framework have looked at how process loss can be minimized, such that the whole can at least be as great as the sum of the parts. Interestingly, collaboration studies in library and information science (LIS) rarely look at process loss.

Theories of Collaboration for School Librarianship

Recent attempts to construct "theories of collaboration" for school librarianship draw on a variety of disciplines, including educational leadership, psychology, and management science. Hughes-Hassell & Wheelock (2001) proposed a three-stage structure: cooperation, coordination, and collaboration. The degree to which the teacher-librarian is engaged in the planning and teaching of the lesson or unit increases with each stage. Montiel-Overall (2005) combines the work of several disciplines with Loertscher's (2000) taxonomy to delineate four models of collaboration: A) Cooperation; B) Coordination; C) Integrated Instruction; and D) Integrated Curriculum. This last model suggests that teacher-librarian is working as a curriculum coach as well as information literacy instructor. Montiel-Overall admits that this last stage is difficult to achieve and rarely observed. Haycock (2007) builds on these theoretical foundations in describing factors which influence successful collaborations, and suggests implications for practitioners. Many of the models of collaboration contain common elements and suggestions for practice. For example, all of the models of collaboration identified in reviewing fifteen years of collaboration research (from Henri, 1992 to Haycock, 2007) insist that co-instruction, shared equally between the classroom teacher and teacher-librarian, is a necessary condition for library activities to be considered collaborative.

Perceptions of Collaboration

Collaboration has been explored in a number of ways by many researchers, but largely in terms of stakeholder perceptions. A recent issue of School Libraries Worldwide contained research articles focused specifically on how school principals affect collaborations between classroom teachers and teacher-librarians. Morris & Packard (2007) examined the perceptions of support for collaboration in 12 schools with exemplary library programs. Their questionnaire revealed that these programs had high levels of principal support for collaboration, although the perceptions did not always match the perceptions of classroom teachers. Farmer (2007) reviews literature relating to principal support of teacher-librarians, identifying key barriers, as well as suggesting ways practitioners may better engage school administration through assessment. These articles show findings similar to those discussed in Hartzell (2002), as well as Oberg, Hay & Henri (2000).

Bale's (2005) study of classroom teachers' information seeking identifies a number of challenges to collaborative efforts, suggesting that collaboration may be more myth than reality. She suggests that the power dynamic between classroom teachers and teacher-librarians is often at fault when librarians are ignored as instructional partners. Collaboration, she proposes, runs contrary to what Tyack and Cuban (1995) call the persistent "grammar of schooling" – the tacit understandings of how schools operate, how professional relationships are defined, and how innovations are muted in favor of the status quo – thus explaining its rarity. This skeptical take on collaboration, running contrary to the optimism of other researchers (e.g. Haycock, 1999; Lonsdale, 2003; Moore, 2005; Morris, 2004) is a necessary balance, reminding us that the elusiveness of

collaboration bears on multiple stakeholders. Missing from many of these research articles are actual observations of collaborative activity. Most have relied on questionnaires to gather data, which begs the question of how these perceptions play out in the practice context.

Exploring Collaboration in Progressive Pedagogical Contexts

Past studies of collaboration have focused on K-8 contexts, and often identify barriers to collaboration such as rigid library schedules, principal support for collaboration, and lack of common teacher preparation time (e.g. Van Deusen, 1996; Zweizig & Hopkins, 1999). Scheduling barriers do not commonly affect secondary school libraries, however, most of which are flexibly scheduled for class and individual "drop-in" access. Newer structural arrangements and progressive pedagogy promise to eliminate many of the other barriers as well. Changing the nature of teaching and learning should have direct implications for library and information services, as suggested by Hartzell (2001). This study explores the nature of collaboration between classroom teachers and teacher-librarians in schools which have taken concrete steps toward eliminating many of the constraints commonly identified in the research literature as roadblocks to collaboration. In doing so, the study poses the following research questions:

1. What is the nature of collaboration in progressive secondary contexts?

2. What affordances and constraints to collaboration with teacher-librarians exist in secondary schools where classroom teacher collaboration is the expectation?

In examining the evidence gathered by the research team, this paper will seek to identify both the process gains and the process losses with respect to collaboration.

Background: The Small High School Libraries Project

The Small High School Libraries Project is a three-year investigation of secondary school libraries in the midst of a specific structural and pedagogical reform effort. Through this reform, comprehensive high schools of 800-2000 students are being subdivided into autonomous academies or "small schools" of 400 students or less. This subdivision carries with it serious implications for the libraries of those schools. Small schools purportedly provide an improved learning environment that results in increased academic achievement, lowered dropout rates, and improved parent, teacher and student satisfaction with schooling. The small schools approach has the support of the United States Congress, the Department of Education, and the Bill & Melinda Gates Foundation. Changing the size and nature of high schools also requires a change in the library program of those schools.

The teaching and learning approaches championed by small schools include: teachers personalizing instruction to facilitate student inquiry and to meet the needs of individual students; flexible curriculum focused on independent research; standards-based learning with intensive support to help students meet standards; and student demonstration of

learning through projects, exhibitions and performance-based assessments. Teaching and learning in a small school requires that the library and librarian provide a rich infrastructure of information skills instruction, reading and literacy advocacy, information and technology services, and resources management. The underlying assumption is that effective library and information services are essential for the successful education of adolescents in small schools. To learn more about the Small High School Libraries project at the University of Washington, visit: http://smallschools.ischool.washington.edu/

Method of Empirical Investigation

The overall goals of this research project included 1) assessing the implications of small school restructuring for library and information services in high schools; 2) developing an in-depth understanding of the challenges faced by teacher-librarians in the midst of structural and pedagogical change; 3) creating best practices to support the work of teacher-librarians who encounter similar change. To address these project goals, the research team elected to use a triangulated, qualitative approach to develop a "comprehensive perspective" of the work life of librarians, the libraries they worked in, and their place in the school community (Patton, 2002 p.306). By systematically collecting data from all six sites using identical instruments, protocols, and time frames, the research team was able to build case studies and also perform cross-case analyses. This paper draws on a smaller portion of the data set collected over three academic years, specifically two protocols (described below) focusing on classroom teachers. In the larger study the research team gathered data from administrators, teacher-librarians, and students.

Table 1: Descriptive Characteristics of Participating High Schools

School	Type	# of Students**	# of Learning Communities	Library Staff (FTE)	# of High schools in District
A	Rural	1,660	5	3	1
B	Suburban	845	3	3	1
C	Suburban	2,166	6	2	2
D	Suburban	1,617	5	2	5
E	Urban	1,076	3*	1	10
F	Urban	1,361	2*	1	10

*Learning communities were structured by grade level rather than thematic, multi-grade (9-12) communities.

** Latest available data from Washington OSPI – October 2006

Site and participant selection. The high schools in this study reflect a variety of socioeconomic levels. Two urban schools, three suburban schools, and one rural school are represented in the sample, drawn from the greater Seattle, Washington area (see Table 1 for a summary of descriptive statistics for each school). The six teacher-librarians of these schools agreed to participate in the study. All were experienced, highly qualified TLs: five held a Masters degree in Library Science (or equivalent) and one held state endorsement in Library Media from an accredited program. Their range of experience, both in the site schools and in the field of education, is displayed in Table 2. Two of the TLs held the role of building technology coordinator. In the final year of the project (2006-07), one TL chose to move to a new school. We successfully recruited her replacement, who participated in project activities during this final year. She holds a M.Ed. with a Library Media focus as well as a state endorsement in Library Media. This change of informants interrupted some aspects of data collection; it did not, however, compromise the school's participation in the project.

Table 2: Descriptive Characteristics of Participating Teacher-Librarians

School	Certification	# Years as TL of Site School	# Years in Education field	Technology Coordinator
A	TL Endorsement	4	17	N
B	MLS	15	25	Y
C	MLS	7	27	N
D	MLS	7	13	N
E	MLS	15	24	Y
F	MLS	14	18	N
F*	MEd, TL Endors.	1	7	N

*New TL was recruited during the final year of the project, 2006-07.

Observation protocols. From May 2005 to November 2006, the team conducted a total of 36 site observations. Each of the participating site libraries was observed six times. The site visits were scheduled at different times in the school day (between 7:00am and 3:00pm) and were two to three hours in duration. This variation was intentional: our goal was to capture the full range of activities that occur in each library. During the observation a member of the research team documented the physical attributes of the library and the behaviors of the teacher-librarian, the students, and the classroom teachers. The observation protocol is in Appendix A. During the observation, the researchers collected sample assignments and other documents related to the activity in the library.

Collaborative activity protocols. The research team observed the school site library activity in 2005 to gain a baseline assessment of the library services and program features, as well as general trends in library use and information seeking of faculty/student users. To expand on this data, the team designed a collaborative interview protocol, focusing on the instructional style and mediation of the TL working with a teacher and class of students on a given library-based assignment. One member of the research team would observe a class lesson taught in the library (see Appendix A), then interview the classroom teacher and teacher-librarian individually about the lesson using unique but related interview schedules (see Appendix B & C). The goal of these interviews was to gain a deeper understanding of the various stakeholders' perceptions of collaboration and library activity. The teacher and librarian were asked questions such as: how did they prepare for the library activity? What aspects went well or went poorly? Was the type of activity observed regular or anomalous? The follow-up interviews occurred within 1-2 days of the lesson. All interviews were audio recorded and transcribed. This protocol was performed twice in each school for a total of twelve data sets (12 observations and 12 classroom teacher interviews, 12 teacher-librarian interviews).

Classroom teacher interviews. Nine to ten classroom teachers from each participating school site were interviewed individually by a member of the research team in February and March, 2007. Principals and especially teacher-librarians assisted in recruiting volunteers. To encourage participation, each teacher who volunteered was given a modest monetary incentive of $20, and a matching contribution was provided to the library for the purchase of resources. In total, the research team interviewed 57 classroom teachers, representing the variety of teaching positions at all six sites. All participants were volunteers; however, the team was careful to select and interview from among those volunteers teachers who would provide diversity of opinion along a number of dimensions: 1) teaching experience; 2) age; and 3) subject matter. Active use of the school library was not a required dimension. In this way, the researchers were able to gather impressions of library users and non-users. These characteristics are represented in Table 3.

Table 3: Demographic Data of Teachers Interviewed

Total	57	100
Discipline	**Frequency**	**Percent**
Language Arts & Foreign Language	25	44
Math & Science	16	28
Social Science	7	12
ELL, Special Ed, Counseling	9	16
Gender		
Male	17	30
Female	40	70
Experience		
Median	8 yrs.	
Mean	11 yrs	
Min	1 yr.	
Max	30 yrs.	

Each of the interviews lasted between 10 and 37 minutes (mean and median: 21 minutes) and was based on an approved protocol included as Appendix D. All interviews were held in a school site location away from the library. Interviews were audio-recorded and transcribed to capture accurate representations of the conversation.

Data Analysis. The largely qualitative data set was analyzed using a set of coding techniques, memos, research team conversations, and member checks. In the early stages of the research project, interviews and observations were discussed in depth by the research team and analyzed inductively for emergent trends, as well as deductively using existing documented patterns of behavior present in the related research literature (e.g. teacher-librarian roles as elaborated by Eisenberg, 2002). These early, iterative analytic steps helped to guide the construction of instruments for years 2 and 3 of the project. For example, the emerging disconnect between teachers and librarians about the process of

collaboration, observed in the in situ observations and informal conversations with stakeholders, prompted the creation of the "collaborative" protocol.

The later stages of analysis, once data collection was complete, incorporated a number of coding methods to identify themes and patterns in the data. Four major themes emerged from the data which, at a high level, guided this more thorough approach and permitted the team to break an enormous data set into manageable portions. The four themes (resources and collections, governance, roles and responsibilities, teaching and learning) or first-level codes were mapped onto the instruments questions to create thematic "sets" which could be analyzed using the iterative pattern coding technique discussed by Miles and Huberman (1994). The team utilized the coding and querying features of Atlas Ti 5.0 (Knowledge Workbench, Inc) to parse the data into these thematic sets. Repeated reading of the interview transcripts, memos, and group discussions allowed the team to identify patterns (second level codes) of individual and institutional behavior within these sets. Some patterns appeared in multiple themes (such as structural constraints, stakeholder perspectives, and emerging tensions), which permitted thematic bridging. Select questions which provided particularly rich data were further analyzed independent of the themes using third level coding schemes specific to those smaller analytic sets.

Findings Part 1: The Nature of Collaboration

The findings from this exploration of classroom teacher and teacher-librarian collaboration are presented in two sections. The first section discusses the observed collaborative activities at six high schools and provides evidence from two case examples to illustrate emergent themes, supported by over 100 hours of observation data and multiple stakeholder interviews. The second section draws on 57 classroom teacher interviews to further diagnose collaborative activity, elaborating on the process losses and gains discovered in section one.

Observing Collaboration: The State of Practice

Initial observations at the six research sites were consciously arranged to represent a variety of days and times, capturing a full range of library activity. What was often missing from these observations, however, was the sense of how teacher-librarians and classroom teachers worked together to provide both instruction and resources to foster student learning. Observations at some sites showed routine information retrieval tasks and desktop publishing to be the dominant academic activity. The research team did not see deep collaborative activity, but this is not to say that the libraries were always vacant. Rather, the teacher-librarians were in constant motion, mediating individual information seeking, trouble-shooting technology, performing readers' advisory, processing and circulating materials.

Collaboration did occur, according to self-report of the teacher-librarians; we were missing some of these partnerships due to the timing of our visits. In light of this, the research team decided that random observation would not permit insight into collaborative activity. We

invited the teacher-librarians to arrange observations that would showcase collaborations, allowing them to select lessons for the researchers to record, so we could gain access to these richer interactions. A member of the research team arranged to observe a collaborative lesson or unit in the library or classroom (or both), then interviewed the classroom teacher and teacher-librarian shortly afterward using the protocols attached as Appendices B & C. Each cooperating teacher-librarian was observed twice, working with different classroom teachers each time, for a total of twelve observed collaborations. The research team provided no guidelines for these lessons; teacher-librarians were free to decide what collaborative activities looked like. An at-a-glance summary of these twelve collaborative lessons is presented in Table 4.

It is beyond the scope of this paper to describe each of these lessons in exhaustive detail; however two lessons in particular highlight the emergent themes. Lesson C1 and Lesson F2 have been selected as case examples; C1 as a model of exemplary collaboration, F2 as typical of the collaborative activities observed in most of the six research sites. Descriptions of these lessons are organized as follows: 1) Initiation and planning; 2) Instruction; 3) Evaluation and follow-up.

Table 4: Summary of Collaborative Lessons.

School	Lesson	Description		Assessment			
		Activity Description	Content Area	Initiation & Planning	Instruction	Evaluation & Follow-up	Overall Assessment
A	1	PowerPoint instruction	Geography	X	X	X	Cooperation[27]
	2	Word template instruction – historical resume	Social studies/ English	X	X	X	Cooperation[1]
B	1	Annotated bibliographies	U.S. History	H	M	H	Collaboration

27 In the course of the observations and interviews at this school, it emerged that these lessons had been staged or contrived strictly for the benefit of the researchers. As such, we have withheld evaluation of these lessons, but still labeled them cooperative since the classroom teachers involved were very supportive of the teacher-librarian. In a later interview, the teacher-librarian remarked: "I think this [research project] reinforced that collaboration is very important. So I'm trying, I'm trying, and I get awfully busy. I get buried. I go to meetings, I'm not here for every class that comes in, you know, but I'm more aware of it. I know that's what my colleagues are doing and I need to be doing, too." While collaboration was not part of her routine prior to working with the research team, we are optimistic that she will expand her practice through the generous encouragement of her professional colleagues.

	2	Country profiles – newspaper articles	World History	M	M	L	Coordination
C	1	Reading and writing support – predicting skills	Language Arts	H	H	H	Collaboration
	2	Search paper – year-end research project	English/ History	M	M	M	Coordination
D	1	Literature supplement -- Scavenger hunt	Language Arts	M	M	L	Coordination
	2	Diseases -- Internet research	Health	M	L	L	Cooperation
E	1	Social issues research, PowerPoint presentation	History/ Drama	L	L	L	Cooperation
	2	Literature supplement -- Holocaust imagery	Language Arts	M	L	L	Cooperation
F	1	Future profiles – essay research	Language Arts	M	M	M	Coordination
	2	Short research paper – African colonialism	World History	M	M	L	Coordination

Key to Collaboration Assessment:

Low: Little or no collaborative activity was present; highly asymmetrical planning or execution; poor communication; little or no follow-through; library activity was not integrated.
Medium: Moderate collaborative was activity present; semi-symmetrical planning or execution; some communication, but breakdowns may be evident; library activity was somewhat integrated.
High: Full collaboration was present; symmetrical planning and execution; library activity showed clear integration.

Case Example C1: Collaboration

The research team found that full collaboration, as described in the literature, occurred in few of the lessons that teacher-librarians regarded as collaborative. One lesson that stood out as being exemplary of the type of collaborative partnership the literature describes occurred in School C between the teacher-librarian and a language arts teacher. The following subsections will explore some details of that lesson.

Initiation and planning. The classroom teacher and teacher-librarian established a partnership and expectations early in the year. As a new teacher to this subject, she was particularly interested in collaborating and developing ideas with an experienced literacy advocate. She describes the impetus for the lesson:

> *CT: "The class I am teaching is called Literacy Standards. It is a reading and writing support class for students that are below grade level. So what I did at the start of the year is that the librarian and I planned that we would come to the library every month and then we would just do something different each month."*

For this month's activity, the two arranged an initial meeting, divided tasks, and then checked-in repeatedly to ensure that they were in synchronicity. Two meetings totaled 90 minutes, plus time spent individually in preparation for the 50 minute lesson, which would include a predicting activity and booktalks. The teacher-librarian describes her preparation:

> *TL: "We met and discussed what we wanted to do and we went online to Marco Polo which is a resource site and found a lesson plan that had some predicting activities. So we gleaned a couple of parts of that and used that today. That was my work with her. We checked back with each other a couple of times to make sure we were on the right track. Well, first I went to the Internet and got some lists of books that were similar to the ones I know the kids like a lot and then I took a bunch of them home and read them, or at least a part of them and then prepared a PowerPoint presentation on these books for the book talk."*

Instruction. The teacher-librarian and classroom teacher co-taught the lesson. The teacher-librarian began by explaining the activity, how it fit with grade level expectations, and where they would expect to use predicting skills in other areas, namely on standardized tests. The classroom teacher and teacher-librarian modeled the activity to the entire class using a computer and projector setup in the teaching section of the library, and then worked quietly with small groups of students. The predicting and genre activities were followed by a set of booktalks by the teacher-librarian built on an "if you like this" format. The classroom teacher explained how she was integrating the predicting exercise with her curriculum:

> *CT: "The way I have broken my class down is pre-reading activities, during reading activities and post-reading activities. This whole first quarter we were really focusing a lot of pre-reading and it will probably take us up to the break in December. This is part of that I can keep reminding them. We will do predicting activities and then the whole concept what is going on inside of your head is really the thing that struggling readers…that is their biggest struggle. They are just looking at words and they are not making any connection. That is why when they get to the end they have no*

comprehension of what they have read. To really get through activities like predicting, and then other things that we will do during reading, will really get them to start interacting with the text so they will hear about this all year long."

Evaluation and Follow-up. The classroom teacher thought the lesson went well, and anticipated that this lesson will prepare students for upcoming standardized testing. She also identified how she can transfer this activity to students at other grade levels, as well as how she would reinforce the outcomes of the activity throughout the year.

CT: "I think, my second period class is sophomores and they will be WASLing this year[WASL is the Washington State standardized assessment] and I think this was very beneficial for them. There are questions that are like this with predicting what might happen later in a story and/or the justification part. Some of the WASL-type questions will say pick a different title for this story and then support your answer and they have to really be able to justify. I find with the freshman and the sophomores that is something they struggle with so even in that activity, as small as this one today, to really get them working on that skill."

This type of collaboration with the teacher-librarian is an ongoing, creative partnership. One strong theme in this collaboration, as well as in others, is how the teacher-librarian helps teachers adapting to new content areas or new courses within a content area by providing creative suggestions.

"She has helped me this year curriculum wise because it is a new subject area for me. I can come to her whatever weird thing, like are there any short stories about whatever and she is like, 'here are five books.' We find an activity the other day, we went to these websites and we found an activity having to do with reading and music where the kids develop a sound track to a book that they have read. She has helped me come up with tons of lessons, definitely."

Case Example F2: Coordination

More typical of the lessons we observed was F2: an 85 minute lesson in which tenth grade world history students worked on a 2-3 page short paper involving electronic and print research. As an example of coordination, we did not see a deep instructional partnership between the classroom teacher and teacher-librarian; rather, the emphasis was on resource provision and facilitating computer access.

Initiation and planning. The teacher was focused on providing a relatively short research project to culminate the sophomore history class. Students were assigned to investigate the process of post-World War II independence for an African nation of their choice. The classroom teacher describes his thoughts behind this assigning this task:

CT: "It was kind of an end-of-the-year project to drive home some of the research ideas, basically make them do a work cited page again, and then do some nice little research. It's also a nice, easy grade at the end of the semester."

This lesson was a familiar assignment to the teacher-librarian. She had helped gather resources for a nearly identical assignment the previous semester, so preparation did not require a great deal of communication.

TL: "I knew that he was doing this assignment, he had been here before to do it, and I went to his website to get a copy. He still had the assignment posted on his website, so that's how I knew what needed to be covered. I didn't feel like I had to really have a deep conversation with him about the assignment."

In preparation for the assignment, the teacher-librarian created a list of useful websites that she could distribute to the students on a sheet of paper. She also selected a particular database tool with a clickable African map. She anticipated that the students would not know the continent of Africa particularly well, and thus the map interface for finding country information would be easy to use.

Instruction. The instructional session in the library was a classic tag-team affair. The teacher introduced the lesson, explained the parameters and expectations. Then he handed-off to the teacher-librarian, who did a brief introduction to the resources that she had selected for them to use. The introduction was perfunctory, as an airline attendant preparing for departure. She included some basic caveats regarding the importance of using vetted information for historical research. After approximately 10 minutes of introductory material, the students were permitting to begin their research on the computers. The classroom teacher and teacher-librarian circulated among the students, directing them, helping to identify their information needs and sources. The classroom teacher explained how he uses the teacher-librarian's knowledge of resources:

CT: "I don't really need her expertise on the topics I go in there for. And then, you know, there are almost no books anymore, so it's largely an encyclopedia Easter egg hunt, which is fairly pointless. And computer research which she, or any librarian, you know, is no better at than I am, actually. So in practice, I don't really see much purpose in working closely with school librarians. The database thing is handy, because I don't know how to do the databases, so she DOES that part. And that part I do leave to her, because I don't really know which databases we have access to, and I haven't done database research in a long time, so that's all changed."

The second half of the lesson occurred using print resources. The student continued the same assignment on the other side of the library with the encyclopedias and other print resources which were displayed on a table near the circulation desk. The classroom teacher spent considerable time during this portion of the session working with students in

small groups on the process of citation. A second group of students came into the library to use the computers; the teacher-librarian was called away regularly to assist them.

> *TL: "I felt really comfortable with what went on…I just felt good being able to help them, you know, just with going around to help them navigate the sites and helping them find information. It was nice."*

Evaluation and follow-up. Neither the classroom teacher nor the teacher-librarian took efforts to follow-up on this lesson. Both seemed mostly satisfied with the result. The classroom teacher had wished to have the computers for the full 85 minutes, but over-crowding limits the amount of time the teacher-librarian will allow any one teacher to reserve the computers. In the teacher-librarian's assessment, the lesson worked on two levels: the students gained access to resources, and were also reminded of the existence of databases:

> *TL: "I think it supported student learning by giving students resources that would guide them to the information that they needed to do their project. Also, for an introduction – any time you can get students to understand that there are databases. You know, just introduce them that there are other resources out there, and so that kind of information can always transfer to later on, so it's like on two levels. One to help them with the project, another to understand that there are resources out there that are easily accessible."*

Summary: Collaboration in Practice

While the research team expected that there would be wide interpretations of the concept of collaboration in practice, we did not expect to see so many lessons in the lower end of the spectrum (cooperation and coordination). What teacher-librarians regarded as collaborative often was little more than resource provision activities and some low-level introduction or resource scaffolding. This suggests a disconnect between existing practice models and researchers' understanding of concepts. Part of the challenge lies in the how researchers in the field have defined collaboration. Most of the definitions (see Montiel-Overall, 2005) require a high level of symmetry between the classroom teacher and librarian, both in terms of planning and execution of the lesson. This symmetry requirement is absent from other definitions of collaboration, even within LIS (see for example, collaborative information behavior, as defined by Talja & Hansen, 2006).

It is understandable that collaboration in the very deep sense does not occur with frequency. Given that the collaborative lesson described in detail entailed at least a two-to-one ratio of planning to execution, it would be impossible for every lesson to be planned with this depth and care. One must also consider the nature of student assignments varies widely; some lessons take 20 minutes, while others will last days. Inputs are not strictly proportional to outputs in creative lesson planning; collaboration done well, however, appears to involve more time and energy than coordination or cooperation. Teacher-

librarians' daily activity will involve a blend of different interactions with classes and individuals, collaboration on units being just one such activity.

Findings Part 2: Perceptions of Collaboration

To gather a broader set of perspectives on how and why teachers work with the teacher-librarian, as well as why they do not, 57 classroom teachers (9-10 informants per school) were interviewed using the instrument included as Appendix D. This interview covered a range of topics, including perceptions of the library and librarian, the information behaviors of high school students, and the strengths and weaknesses of the library program. To inform the findings of the first analysis presented in this paper, this section will focus on the data culled from three questions of this interview schedule: 5) Do you create some of your class assignments with the intent that students will use the school library; 5.1) How often do you bring the class to the library; and 5.3) Do you work with the librarian to create the assignment? Free-form responses were coded inductively. Table 5 provides a cross-tabulation of this data, using visit frequency as an independent variable to analyze the other two questions for patterns.

Table 5: Collaborative behaviors of classroom teachers.

How often does your class visit the school library?			**Do you work with the librarian to create the assignment?**		**Do you create assignments with the intent that students will use the school library?**		
	Freq.	%	Yes	No	Yes	No	Option *
5x per semester or more	18	31	6	12	14	0	4
3-4x per semester	13	23	6	7	6	2	5
1-2x per semester	13	23	6	7	6	4	3
less than 1x per semester	13	23	3	10	2	4	7
Total	57	100	21	36	28	10	19

*Library optional: teachers frequently observed that they create assignments which require research, but do not expect or require students to use the school library.

While the data set is too small (n=57) to discern statistically reliable inferences, some patterns do emerge. Just less than half (48%) of respondents indicate that they create

assignments to be performed in the library. Another 33% require student research, but do not require students to use the library to complete these assignments. Together, this indicates that 81% of teachers interviewed expect students to be performing research for their classes. However, only 37% of teachers involve the teacher-librarian in the creation of the research assignment. Interestingly, teachers who frequent the library with their classes (five times or more per semester, roughly once per month or better) were no more likely to plan their assignments with the teacher-librarian; in fact, they were less likely to do so than those who visit the library twice per year. This suggests that, for this sample of teachers, visit frequency is not necessarily an indicator of a collaborative relationship with the teacher-librarian.

What does predict or even predicate a collaborative partnership? As suggested previously, collaboration in a situation which may be based on a perception of gains and losses. Other researchers have documented the potential advantages of collaboration with the teacher-librarian. The process losses, however, have been more elusive in the literature. Identified losses and gains are detailed briefly in the next section. Qualitative responses to the three questions, where available, were coded to create a typology of factors contributing to pro-collaboration perceptions, as well as a typology of collaborative constraints.

Factors contributing to pro-collaboration attitudes

Inductive coding of the qualitative responses produced three categories of pro-collaboration attitudes, which may be considered process gains. These were: 1) resources for learning; 2) direction and feedback; and 3) a different perspective.

Providing resources for learning. The classroom teachers focused most on how the teacher-librarian provided timely information retrieval and resources for learning, often without prompting. The research acumen of the teacher-librarians in this study impressed many classroom teachers, as well as the administrators we interviewed. A common superlative description relays this sense of respect, if not professional admiration:

> *"The librarian is queen here. (…) It is, I think, a focal point of our school, and I say that because our library is truly a teaching library. She is a teaching librarian. I can go to her and I can say, I was thinking I'd like to do something a little different with my Martin Luther King unit. I'm kind of looking for some web sites that I can play around with. I'm looking for this, that and the other thing. The next day, she'll have it for me. (…) She makes everybody's job easier."*

Providing direction and feedback. Teacher-librarians provided a creative spark for classroom teachers struggling to develop research-intensive instruction, particularly those new to the profession. Comments from two first-year teachers illustrate how the teacher-librarian helped them work through early iterations of assignments, providing mentorship and suggestions for instructional improvement:

"For me, [librarian] has been an amazing resource. She's been good on many levels. For me, as a first year teacher, there are so many times that I have been lost in terms of here's what I want to do, how do I do it. [The librarian] has been able to say, 'here are the resources that we have here in the library. This one would be good for this, this one would be good for this.' And she will set things up for me. So all I have to do is bring my kids in and everything's right there."

"The first time I did the assignment, she actually came back to me afterwards and said, you know, it might actually go more smoothly…would you like to incorporate this? Can we talk about this? So, yeah, she did work with me to help improve the assignment that I was working on.(…) she's very good at being encouraging but also being honest and constructively critical."

Providing a different perspective. Teachers suggested that the unique perspective of the teacher-librarian was a tremendous help in designing lessons, incorporating standards, and developing methods of assessment. One teacher identified a concrete example of how the "brilliant librarian" had influenced her teaching:

> *"She will think of resources for us and also because she was a teacher, she will just think of fun things to do with the lesson planning. She's, I'm not kidding, a brilliant librarian. She will just help orchestrate it. You know, she just asked me the other day because I had students doing research on the Harlem Renaissance, and she said what websites did you tell them to go to? She pointed out: is your goal that you want them to know where to find it? Or is your goal that you want them to learn about the Harlem Renaissance? Which is a really good question. The goal wasn't for them to learn how to find it. I just wanted them to learn. So she helps me, reminds me of teaching strategies, like a purpose. What was my purpose? I hadn't even thought about that. So they could waste literally the entire period spinning on the internet when that wasn't the goal. She reminds you of stuff that seems really simplistic, but when you're a teacher doing lesson planning you forget sometimes the simplest things."*

These remarks mirror the findings of Van Deusen (1996) who identified the insider/ outsider role that teacher-librarians can plan on a collaborative teaching team.

Factors working against collaboration

In explaining why they did not work collaboratively with the teacher-librarian, classroom teachers revealed a number of factors that weigh against collaboration, which we might consider perceived process loss. These included: 1) non-library access points; 2) barriers to library entry; 3) planning complexity; 4) low-level library instruction; and 5) role perceptions.

*Non-library access points***.** The most common reason for bypassing the library was the availability of alternate access points to information resources, namely computer labs, classroom computers, and local book collections.

> *"I design them more now to just go to the lab. We have a computer lab that's sort of taken the place of going to the library to do research since information is so easy to get on the web. I'll schedule in a lab day, and we'll go and research their topic from, like, the 1920s. Then all at once they can come in and do their research and immediately turn around and do their write up like a magazine article. Create it in Publisher. They can do it all in the lab without going to the library. I couldn't tell you-when I was at my last school, I remember teaching them to go onto ProQuest and some of those databases like that and um, I suppose that the time it took made it less worthwhile. It seemed like it was taking up too much time so just letting them loose on the internet just seems to be a lot more effective, if not as accurate."*

Teachers reported that the amount of project-based work and student research was increasing, particularly with new state mandated assessment systems. Many teachers assigned projects that may or may not be performed in the library; they left it to students to decide how to access these resources.

Interviewer: *So how often do you bring your students to the library?*

Teacher: *Maybe once a year honestly. If it's assignment that requires research, I assume that they will go on their own. They have tutorials at lunch or after school or they will do the research part from home. I have my own little library in my classroom.*

The assumption that 80-90% of students had access to the internet at home further drove this approach to research. If the students have internet access at home, then visits to the library are not an effective use of class time:

> *"A lot of them have computers at home so they'll get the websites and then they'll go home where it's quiet and they're not in a group of 34 people, sitting next to other people, and they'll do the research there."*

To a limited extent, teachers associated the library with "print" collections and books, and the teacher-librarian's expertise predominantly with that medium. If teachers no longer require print resources for assignments, the mediating skill of the teacher-librarian is superfluous. One teacher remarked:

> *"We as teachers don't make assignments anymore where the students need print resources. Ask the students here [motions around the classroom]. Maybe two in here have a library book checked out. Why have the library? Why have our money there?"*

The ready access to information on the web, combined with the inadequacy of print collections in many school libraries further reinforces a "do it yourself" research ethos with classroom teachers.

> *"In the early stages of these projects, she would pull books off the shelves for us that we could offer for kids to use, but we found that the books just didn't really have the information that we were hoping kids would get. So we just went to the computer, but we haven't, for example, had her corral together a bunch of web sites and then put them in a folder and then had kids access the things she found. I would say that there's never been a time where [the librarian] and I sat down and created an assignment together."*

Underlying many of the classroom teachers' responses is the assumption that collaboration with the teacher-librarian and use of the library are inextricably linked. In other words, if you are not working *in* the library, the perception is that there is no need to engage the teacher-librarian in preparation or execution of the lesson. This has implications for how teacher-librarians collaborate, given that research projects are seemingly multiplying, and the clear trend is toward pushing technology access toward the classroom.

Barriers to library entry. Teachers frequently reported that the library is often difficult to schedule, and is in constant use, making their use of library resources less frequent. Despite the desire to use the library and collaborate with the librarian, the scheduling of library time was the challenge.

> *"It is hard because of the availability of the library, and you have to plan way in advance in order to get time in the library. They can only have a certain number of kids and classes in there at any given time. This being such a huge school and only having one library, with 2200 kids in this school, the availability is very limited."*

> *"So there's tons of stuff I want to do here in terms of searching, as far as research projects that involve media. If I don't plan it a month out, I can't do it, and I would love to say I'm this brilliant teacher who can plan a month out, but I really can't plan more than a week ahead of time at the current moment."*

This barrier was particularly salient in schools where the library computers constituted a large percentage of the building-wide computing resources.

Planning complexity. Collaboration increases the complexity of unit and lesson planning. Time constraints are a factor in developing assignments collaboratively even when adequate and consistent planning time facilitates teachers working together. Part of the issue is timing, and how well prepared teachers are in developing research assignments:

> *"It's a really interesting idea [collaboration], but you are creating assignments at home at midnight. It's not like you can sit around and chat about assignments to create. [The*

librarian] is very busy and we're running, that's what we do in this job. In a perfect world, that'd be cool."

"The librarian is perfectly willing to prepare some materials ahead of time and search web sites, that kind of thing if you give her a head's up, but the nature of teaching is that we're so overworked that we don't have a lot of time to give, to get that consult."

In this study, schools employed team teaching and block scheduling to facilitate integrated curriculum. Many teachers reported that they worked collaboratively with other teachers; yet, they did not work collaboratively with the teacher-librarian. In fact, a collaborative norm may make it more difficult to include the teacher-librarian in the planning stage because the classroom teachers are so busy collaborating—with each other. One teacher remarked:

"Boy, to be completely candid with you, I used the library a lot more when I was a lone wolf (…) Oftentimes, we are just trying to keep on track with each other so much. We're so focused on designing the curriculum and implementing it in a cohesive fashion that we don't think about, I think, using the library as much as we could."

This response reveals the "out of sight, out of mind" challenge that many teacher-librarians face. Collaborating with a near colleague is easier than a far colleague. Teachers revealed that a building norm of collaboration is not sufficient to ensure that collaboration will occur with the library program.

Low-level library instruction. Teachers remarked that the quality of library instruction was often lacking, or at a very low level for high school students. This notion is supported by researchers' observations in situ over the course of the research project. Teacher-librarians often began with very basic directions, starting from the school homepage or research portal, and quickly lost the attention of students. Exhortations to avoid popular internet tools such as Google and Wikipedia often took the form of over-simplifications or platitudes such as these comments recorded in field notes:

"This is better than Google. These databases will make you a smarter user."

"70-80% of online information is not what you need, and many websites are wrong."

"Google is not a learning experience in this library! Don't use it!"

"No Wikipedia – you can't trust it."

Serious discussions of authority control, evaluation criteria, or credibility were absent from these lessons. One teacher remarked that:

"I used [the librarian] once to do a research presentation to my kids and I wasn't real happy with it. I was hoping she would have something a little more specialized to present (…) My mother is a librarian, an elementary school librarian, and she's very

> *big on the idea that the librarian should be collaborating with teachers more: 'you should really find out what your librarian could do for you' and things like that. A lot of teachers don't often see much of a possibility; don't really see that push to collaborate. It's just kind of disappointing when you go down and try to say: don't just tell them, 'Don't use Google.'"*

The explanation for low quality instruction does not reside in inadequate training; rather, the ad hoc manner in which students visit the library does not permit instruction to spiral upward from a base level of competence. Interviews with teacher-librarians revealed that they did not have a clear grasp of student abilities, and were afraid to speak "over the heads" of students, potentially alienating them from the research process.

Role perceptions. Only three classroom teachers explicitly stated that it was not appropriate for the teacher-librarian to influence the nature of the assignment. One remarked that assignments are not the librarian's job:

> *"I let her know what the assignment is. She'll tell me oh, I have the perfect blah, blah, blah for that, but I don't go to her and say, will you help me make this assignment. I don't think that's her job. I think her job is to help me be successful. I think she's more of a helping role. She'll guide me in the right direction if she doesn't have what I need. She'll tell me how to get it."*

This type of barrier to collaboration relates to the "grammar of schooling": collaboration in this conservative approach to pedagogy threatens the power of the classroom teacher. One informant remarked:

> *"[T]he library is seen as an extension of the classroom. If students go there, they've been prompted by an assignment from the first teacher or by some skill building like independent reading, but it's always initiated by the first teacher rather than the library."*

This "extension of the classroom" notion places the classroom teacher firmly in charge of the lesson and pushes the teacher-librarian to the role of subservient support personnel. While this attitude was not prevalent in the data set, it is important to note that it still persists.

Summary of process loss perceptions. Any perceived loss of productivity or quality due to working in concert with the library program presents a barrier to the realization of collaboration. It is not unexpected that process loss will occur in collaboration. In fact, many studies of collaboration in other domains find that process losses outweigh process gains. In light of the barriers to collaboration identified here and in other research literature, we should not be shocked or disappointed that true collaboration is rare. Indeed, we should be more surprised that it happens at all.

Classroom teacher informants suggest that the decision to incorporate the library and information resources will be made early in the lesson planning stage. If the library is not present in the early stages of preparation or in an advance unit plan – when the space can be reserved, resources gathered, and collaborative activities initiated – it will most likely *not* factor into the lesson.

The Future of Collaboration? Implications for Practice and Research

Collaboration can produce high quality learning experiences for students which may lead to student achievement. However, in the practice world we find collaboration rare. This is often attributed to barriers outside of the teacher-librarian's control (lack of common planning time, teacher attitudes toward collaboration, principal support) which can be changed by working strategically with the administration and teacher leaders. A close examination of process losses and gains in collaboration presents a slightly different perspective. As demands on information resources and services increase with progressive pedagogy and new technologies, teacher-librarians will need to approach their instructional and resource provision roles from a new angle, rather than convincing the rest of the school community to "play along." Three emerging themes from the empirical evidence make the need for this shift salient:

1. *Demand for information services at the point of need*: Personalizing instruction requires adapting teaching styles to spontaneous inquiry. Furthermore, the "teacher as generalist" approach suggests that incorporating information skills into a wide variety of academic tasks daily will provide a stronger foundation for learning and transferring these skills. Teachers cannot put off the teachable moment until the library or librarian is available. We must accept that most information seeking to support learning will be done without professional intermediation.

2. *Capacity for providing information services in larger contexts*: In large high schools incorporating new methods of teaching and learning, the demand for access to information outstrips the capacity of school libraries to supply it. The clear solution to upgrading capacity is by moving resources to the network level to accommodate more points of access. Academic and public libraries have already learned this lesson. Rather than pulling users into the library, teacher-librarians must push resources out to the classroom and the home, where students are doing most of their research.

3. *The quality of teacher-librarian instruction*: The teacher-librarians observed in this study were librarians first and teachers second. This is not to say they were incompetent, lazy educators; nothing could be farther from the truth. There were a number of factors, however, which decreased their effectiveness, not least of which was their distance from the dialog of the classroom. Compounding the aforementioned disconnect is the infrequency of library visits, inconsistent

instruction (as it is at the will of the teacher, not the teacher-librarian), and the tension between co-instructors as they negotiate their roles anew each time.

The implication of the above themes can be summarized in the following: if we expect students to become effective users of ideas and information, then information literacy will not be taught exclusively by teacher-librarians in the library. A tremendous challenge is the "dosage" of intervention. At most, according to our sample of classroom teachers, students will visit the school library for an instructional session a few times per quarter, and the actual instruction will last fifteen minutes or less. Imagine if we taught mathematics for only an hour or two per year! The lack of a coherent strategy at the curriculum level furthermore makes the dosage ad hoc and ad hominem, decreasing its potency over time as lessons are repeated or skipped, and a firm foundation of skills never materializes.

Whither the Librarian in the Network Age?

This study found that collaboration, at its best can be quite successful, but collaboration itself is insufficient to guarantee improved student outcomes. The "magpie" approach adopted by practitioners in the field, where collaboration is sought and employed where and when it is convenient for classroom educators, produces far more heat than light. Researchers are partially to blame for this: teacher-librarians are continually pressed to collaborate with educators without attention to strategic goals and outcomes, since they are often assumed. We must remember that collaboration is not an end, but a means to achieving student learning. If the process loss (in terms of teaching time and effectiveness, information access, and instructional quality) does not outweigh the process gain, then collaboration may not be the panacea projected by some researchers. For collaboration to be effective, teacher-librarians must focus not on isolated instructional partnerships at the dyadic or team level, but on building-level curriculum collaborations, similar to Montiel-Overall's (2005) Level D collaboration, with the notable exception of the instructional locus.

An important facet of such higher level collaborations will be giving up, at least to some extent, direct information literacy instruction, especially in secondary schools. For instruction to have effect, it must have both the proper dosage and consistent exposure. Teacher-librarians have long fought against teaching library skills "in isolation;" that is, teaching these skills discretely and not in the context of a classroom teacher's lesson. The result has been a different kind of isolation: information literacy instruction occurring only in the library, rather than embedded in daily learning practices. But if classroom teachers are teaching information literacy, what will the teacher-librarian do? This would appear to be a threat to the profession, and has been interpreted as such in studies where schools attempted to "do without" trained library professionals (e.g. see Loertscher & Woolls, 2002 p.60-1). Much of this professional apprehension is built on the same grounds that foster concerns over classroom book collections and computer labs full of Google. Rather than leveraging these resources, teacher-librarians engage in quixotic fights against them.

Freeing the teacher-librarian from the onus of direct skills instruction, rather than spelling the end of the profession, would present new opportunities. As resources are pushed to the network level, the teacher-librarian must also work at the network level, managing curricula instead of discrete lessons, integrating skills as well as resources into the activities of the classroom on a different scale. The teacher-librarian then becomes a curriculum coach and a manager of information literacy instruction, as well as a partner in assessing the outcomes of instruction. This suggestion does not radically change the role of instructional partner so much as question the level at which it is most effective. The challenge would reside in pushing practitioners beyond the traditional grammar of librarianship.

Implications for Future Study

Despite decades of work on collaborative planning and instruction, the firm link between collaboration and student achievement remains elusive. There are signs of progress in the numerous studies which have emerged in the LIS literature in recent years, including both theoretical and empirical research. In light of this recent work, more systematic approaches to studying collaboration are required. The contribution of this paper has been the description of collaborative practices as they exist in the evolving secondary school, as well as the perceptions of classroom teachers toward working in close concert with the teacher-librarian. Controlling future studies for aspects of these findings (e.g. content areas, high or low perceptions, visit frequency) might permit researchers to assess the role collaboration takes in different types of instructional partnerships. Studies of successful collaborative arrangements are not sufficient to prove that collaboration has a positive effect on student learning. As this study suggests, opportunistic collaboration may provide little in terms of strategic benefits to student learning in the longer term, and could be offset by significant process losses. Systematic collaborative studies which hope to prove achievement gains must track collaborative activities longitudinally.

A consistent oversight in the collaboration literature has been attention to secondary schools and the unique conditions which confront teacher-librarians at this level. As this study has demonstrated, many of the documented barriers at the elementary level (fixed scheduling, teacher prep time, principal support, professional respect) have been replaced by other constraints, including distributed technology access and library capacity. Further research is needed to thoroughly identify these constraints, as well as how teacher-librarians may overcome them in providing information services which truly increase student achievement.

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CHAPTER 9

SEVERE WEATHER PREPARATION

A SEMINAL COLLABORATIVE EVENT

SARA WOLF
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Abstract

The authors present an account of a seminal collaborative planning project between a novice library media specialist and an experienced teacher. Though the unit was successful, both the library media specialist and classroom teacher identified modifications for future collaborative projects. These modifications include establishing more well-defined role expectations for the adults, altering the activity schedule to allow students more time for independent work on proofreading and editing, and providing the students a more explicit explanation of the rationale behind citation of sources. The success of this unit provides additional support for prior recommendations regarding flexible scheduling of the library media program and the value of collaboration between library media specialists and classroom teachers.

Introduction

During the school year, following the tsunami tragedy of 2004, 18 third-graders were presented with the following two stories.

> *In Hawaii, there was a teacher who noticed the water in the ocean seemed to be going far away from the beach. She and her students went to the water's edge in order to examine the aquatic life that had been revealed. Tragically, the teacher and her entire class were killed when the associated tsunami returned to the shore before they could escape. (See related information at:*
> *http://nees.oregonstate.edu/IT/info/Laupahoehoe.htm,*
> *http://starbul1etin.com/96/04/01/news/story 3 .htm!, or*
> *http://www.ghosttowns.com/states/hi/laupahoehoe.html)*

In Phuket, Thailand a British school girl noticed the water in the ocean near where her family was vacationing was receding from the beach very quickly. She had recently studied tsunamis in school, and knew to warn her family to run for safety on higher ground. Her quick actions managed to save their lives as well as the lives of 100 other tourists. (See the complete story on the National Geographic News website:

http://news.nationalgeographic.com/news/2005/0 1/0 1 18_0501 l8_tsunam i~eography_lesson.html)

The library media specialist (LMS) telling these stories had been faced with figuring out how to convince a group of 18 third graders at the end of a long year to be interested in doing research on "Severe Weather Preparedness." So, she told them these stories, grabbed their attention, and told them, "Someday, I'll be an old woman and won't know how to be safe in severe weather. I'm counting on you to help me if I need it." The LMS and the students' classroom teacher had embarked on a col1aborative research unit on the topic of "Severe Weather Preparedness." This topic is a part of the third grade course of study and one that many students found to be exciting to study. This article will provide library media specialists who are new to collaboration an account of the experiences of a novice collaborator. The authors aim is to provide motivation, guidance, and reassurance to library media specialists who seek to collaborate with classroom teachers.

Participants and Setting

The LMS and Teacher. The LMS is new to the library media profession, having more than ten years' experience in teaching elementary students. She is in her second year as the LMS at this school. Currently, the LMS is completing state certification requirements for her library media certificate. The teacher is in her third year of teaching third grade after teaching fourth grade for four years. Her faculty selected her as teacher of the year prior to the year this collaboration took place. Both the teacher and the LMS are relatively new to formal collaborative processes for curriculum development. However, they entered into this collaborative activity with positive attitudes and were willing to try something new so that the students would have a positive learning experience.

The Class. Eighteen third grade students participated in this project. Twelve of the students were male, and six were female. The students in this class read on grade-level with several reading above grade level. These students had not had prior experience creating projects or documents like the one required for this project. Over half of the students in the class reported that they had access to the Internet from their homes. The students seemed eager to embark on the project activities.

The Library Media Center (LMC)/Classroom. Main Street Science Magnet Academy (MSSMA) is a new school, less than five years old, with a teaching faculty who are known in the local area for their enthusiasm for teaching science to elementary students. It includes both neighborhood and a lottery population of students from around the city. Students come from a wide range of socioeconomic backgrounds. The LMC has had a full-time LMS for two years. In the LMC, students had access to eight networked computers with Internet access, reference materials, and trade books. Three networked computers were also available in the classroom.

Motivation to Collaborate

The LMC at Main Street Science Magnet Academy functions in a modified flex scheduled environment. While regularly scheduled library classes are conducted throughout the week, a significant portion of the time available is left unscheduled so that teachers and students can use the LMC on an as needed basis. This flexible schedule permitted the LMS and the teacher to work together to plan and implement a technology integrated research-based writing unit for third grade students.

The library media specialist (LMS) meets periodically with grade level teachers to discuss information literacy and technology integration. In a discussion with third grade teachers, the LMS learned that one of the teachers was interested in improving her writing instruction. The media specialist met with the teacher individually to discuss a possible collaboration opportunity that would integrate technology and report writing in an upcoming unit. After a thorough review of the state courses of study, the teacher and media specialist met again to select a particular unit for their collaboration. Weather preparedness was chosen because students had previous exposure to the topic and had met it with great enthusiasm.

The teacher reported that in the past, instruction and exploration of severe weather was based primarily on textbooks and video resources. For a final project, the students made individual posters that provided information about a particular type of severe weather. The media specialist suggested that for this project the students work in groups to examine a type of severe weather likely to occur in the area in which the students live. Thus, the research was made relevant to the students by focusing on weather types they had experienced in the past and were likely to experience again in the future.

Materials

The library media specialist developed several resources to aid the students in their research. First, a simple multimedia slideshow presented to the students at the onset of the unit outlined the objectives and final outcomes for the students. The slideshow also served as an example of a multimedia presentation for students who had not been exposed to that medium. Also, students were given a note-taking guide to record answers to specific questions and a multimedia template (See figures 1 and 2) to structure the final presentation. Figure 3 shows the presentation template.

Name _____ Group _____

Note-Taking Guide

Description of Storm:

1. How did your storm get its name?

2. Where are you likely to see your storm?

3. What time of year does your storm happen the most?

4. How would you recognize your storm? (What does it look like)

5. How does your storm "act"?

6. Are there any "famous" occurrences of your storm type?**Preparing for the Storm:**

1. How would you know that your storm is coming?

2. What is the most important thing to do when you hear that your storm is coming?

3. What is the second most important thing to do?

4. What's the next most important thing to do?

5. What is one "interesting" thing that you should do before your storm strikes?

Aftermath of Storm (Damage:

1. What does the landscape usually look like after your storm?

2. What does the sky usually look like after your storm?

3. What might your street look like after your storm?

4. What changes or problems might your storm cause for the community helpers in your town?

Figure 1. Note Taking Guide

Sources:

Figure 2. Research Source Tracking Page

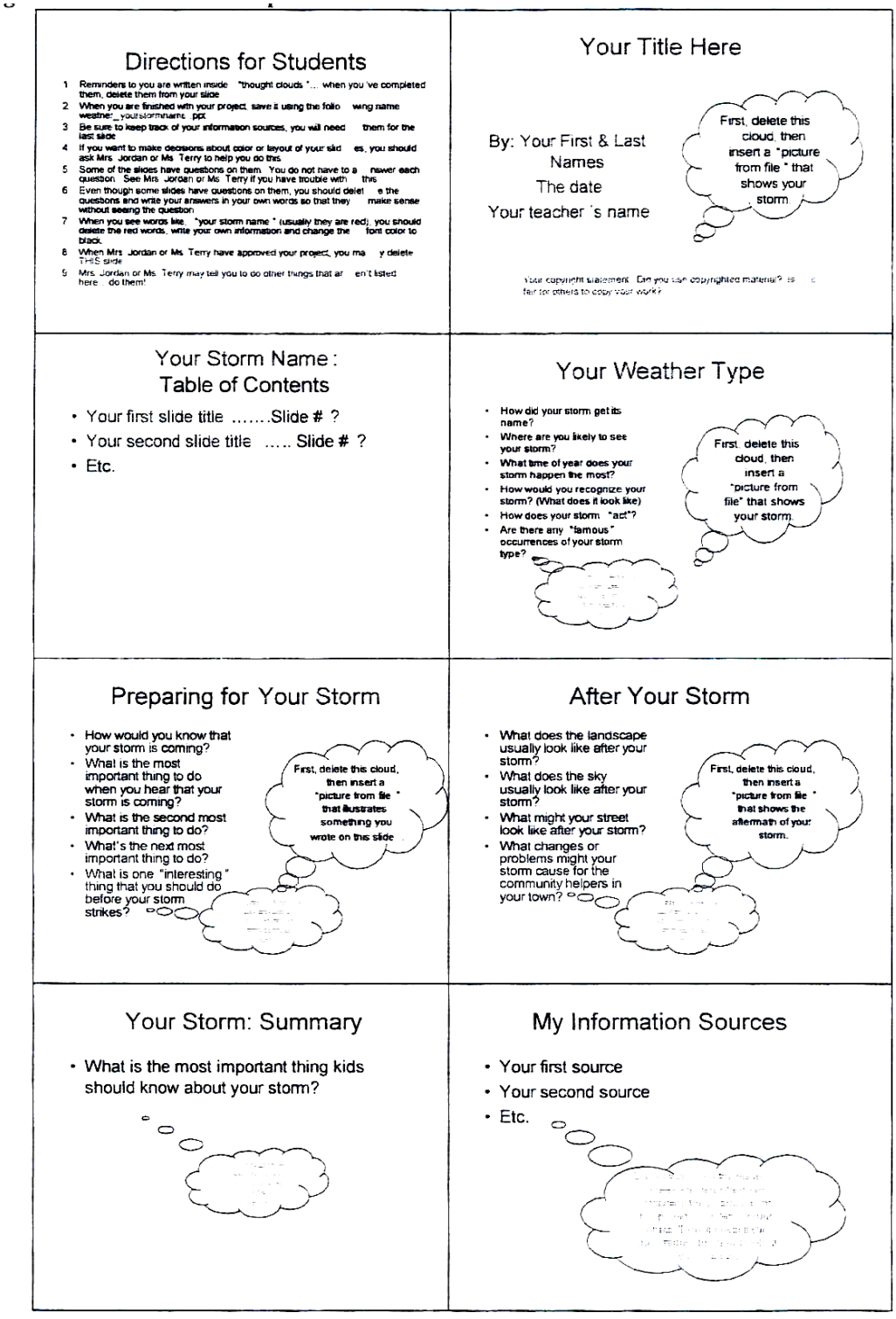

Figure 3. Presentation Template

These guides, or scaffolds, were provided to students at the outset of the project to provide support for their learning activities. Scaffolds that are created prior to a need are described as "hard scaffolds" by Brush and Saye (2002). According to Brush and Saye, hard scaffolds are those that can be pre-determined to be needed, such as the note taking guides in the severe weather project. Whereas, soft scaffolding is the support that teachers provide on the fly in the form of questioning, modeling, or other forms of non-tangible assistance. Finally, the library media specialist developed a list of online resources in print and digital form.

Non-Technology Resources. The LMS provided the students with a variety of resources that they could use to complete their research activities. These included various trade books on weather, print encyclopedias (general and subject-specific), atlases, almanacs, and dictionaries. The LMS also created a note-taking guide and a bibliography of suggested print-based references. These resources were available to students throughout the unit activities, with no accessibility restrictions.

Technology Resources. The LMS also made nontraditional resources available to the students. Students could access the Internet and library catalog in an online format, electronic versions of encyclopedias, a web-based bibliography of project-related websites (webliography) as well as relevant videos and DVDs during their research activities for the project. The LMS also provided them with access to multimedia presentation software (Microsoft PowerPoint), a template that provided structure and development reminders to the students, and a scanner during their synthesis (Eisenberg & Berkowitz, 1988) activities. When the students' projects were completed, they had access to a projector and screen for their final delivery of their completed presentations.

Procedures

Planning. The "Preparing for Severe Weather and Natural Disasters" unit was conducted over the course of approximately five weeks (one or two scheduled LMC visits per week) during the spring of the school year. The LMS had an established routine with the teachers in her building of attending grade-level planning meetings on a regular basis. During the third grade planning meeting the teachers expressed the desire to have support during the writing instruction activities that were due to occur in the curriculum. The LMS offered to help with a lesson that would involve writing, and proceeded to conduct a preliminary exploration of potential topics that would fit into the third grade curriculum. During an individual planning meeting with the teacher, the topic of "Severe Weather" was chosen. "Severe Weather" is a topic that is required to be taught under the course of study and, further, one in which the teacher felt the students needed further instruction in order to meet the course of study objectives.

The LMS and the teacher discussed the contributions each would make to the unit. The classroom teacher was responsible for the writing portion of the unit, once the students

had gathered the required information. The LMS was responsible for the technology integrated into the unit. The . focus of the technology integration was an effort to make the various tools as "invisible" as possible to the students so that their attention could be fully focused on the content being learned, rather than on the technology.

Implementation. The LMS and teacher used the first day of the unit for introduction and discussion that provided the enabling context (Hannafin, Land, & Oliver, 1999) for the students. The 2004 Indian Ocean tsunami was still fresh in the minds of the students, and the LMS used this event to provide relevance to the unit. The LMS and students discussed several stories circulating in the news media about lives being saved due to the heroism of a few knowledgeable individuals. It was during this discussion that the LMS suggested to the students that they might also be able to save lives one day based on the material they learned in the severe weather preparedness unit. Once the introductory discussion was complete, the LMS and students brainstormed for types of severe weather that frequently occur in their geographic area. While the teacher and the LMS had determined which weather events would be studied during the unit, became personally invested in the project through the guided brainstorming activity.

Following the introduction to the unit, the LMS spent one instructional day, during the regularly scheduled library time, introducing students to the note-taking guide the students would use to organize their work as well as appropriate reference resources available to them. The first group responsibility, the organizer, was assigned on this day. The other group responsibilities, peacemaker and resource checker were assigned later in the unit. The LMS trained the students in how to fulfill each of these roles on the first day of instruction by providing job descriptions for each role and allowing the students to assign role responsibilities to each other. In groups with more than three students, there were two resource checkers.

Most of the instructional activities took place over three days. The students worked in the library both during their regularly scheduled time and during additional time that was scheduled by the teacher and the LMS. Students worked as a large group and as small groups as the unit progressed. This group of third grade students did not have a strong background in note-taking for writing purposes. The LMS presented the activity to them as "organizing yourself" rather than "taking notes." This allowed the students to be less fearful of a skill that they saw as one exclusively conducted by the older students in the building. It also allowed them to take notes and organize their information in a more egalitarian manner. The students became more willing to delegate information-seeking skills to members of the group, rather than remain intent on completing the note taking guides in the order in which they were presented. This note-taking, however, was a skill that was a bit difficult for them to grasp at first. The teacher and LMS planned for the students to use two days to construct their presentations, but this schedule was altered as the unit progressed. Students ended up creating most of their presentations during nonscheduled instructional time during the day. The teacher and the LMS allowed one day to be used for

proofreading and editing activities. Because, each individual group progressed at a slightly different rate throughout the unit, the LMS ended up assisting with proofing and editing throughout the latter half of the unit schedule. The students were scheduled to present their projects to the entire class during a regularly scheduled class day. However, due to unforeseen changes in the school schedule, the presentations were postponed until closer to the end of the school year.

Discussion

Library Media Specialist's View. Throughout this project, the LMS marveled at the students' enthusiasm and willingness to stay on task. The LMS found that students learned to use reference and trade materials without the need for isolated how-to lessons. Using the resources to help create a project provided an authentic use of those materials; resources were appropriately used as a means to an end and not vice versa. Also, incorporating technology and utilizing student-created project helped create an atmosphere for animated discussions of various aspects of weather and weather preparedness. Finally, the LMS described her feelings as she guided students through the proofreading and editing phase after the projects were completed as "conflicted." She found it difficult to balance the emotional needs of the students to reach closure on their projects, the editing needs for each presentation, and her own desire for the students to create products with as professional of an appearance as possible. The LMS plans to work closely with grade-level teachers in the future to find an appropriate balance between expediency of completion, high standards for the finished product, and grade-appropriate expectations.

The Teacher's View. After this experience, the teacher sees the benefits of collaboration. The teacher's self-confidence in her contribution to the project (Brown, 2004) increased as a result of the successful completion of the unit activities. She said, "I didn't think I could do it before, but now I think I can." This willingness to collaborate even extends to activities that might occur with other teachers on the faculty. Not only did the teacher say that she'd be more likely to manage a multimedia project in the future, she also is interested in having projects of this sort be "continuing goals" in her classroom. She was intrigued by the self-contained project, but is interested in having ongoing group projects as well. When the rest of the third-grade teachers heard about the unit, they expressed their interest in collaborating with the LMS for research-based units as well. They were interested in restructuring library schedules to allow more time for flexible access and other collaborative units.

The teacher's reactions to the technology integration and collaboration were especially positive since this was an unfamiliar curricular area for her. She said that, this approach was an "excellent way to use cooperative learning. It really showed each student's strengths and weaknesses." Unfortunately, this teacher often wasn't able to see the students' interactions as they completed some of the research activities during the latter

parts of the unit. She is interested in structuring future collaborative units so that this would be possible. The template that the students used to create their final projects was of particular interest to her as well. "The students could not have accomplished nearly as much as they did if the had had to design a presentation [from scratch]," she said. Her observation supports information found in the literature that discusses the benefits of collaboration. That is, that the LMS can contribute knowledge and skills in specialized areas such as information literacy instruction (Thomas, 2002) and research strategies and technology skills (Asper, 2002) to the project.

The Students' View. Overall, the students were intrigued during the introductory lesson when they heard about the two scenarios regarding knowledge of tsunami characteristics. But, while the students were generally enthusiastic about working on the project, they did need some guidance on using the note taking guide. The LMS speculated that they were not accustomed to having a document that could be completed in random order. Even as young as third grade, these students had become extremely accustomed to completing "worksheets" in order. The lack of a linear research requirement necessitated additional soft-scaffolding (Brush & Saye, 2002) in order to break down some anxiety associated with the process.

The biggest negative reaction from the students had relatively little impact on the research portion of the assignment. The students became impatient during the editing and proofreading phase of their work and seemed to lose interest. The scheduling of the unit close to the end of the school year may have exacerbated this reaction. Also, the LMS noted that there were times when her expectations regarding the quality of the student editing and proofreading may have been inappropriate for these third graders' developmental needs.

Lessons Learned. The students, the teacher, and the LMS all experienced the development of traditional library skills with minimal use of unidirectional, didactic, instructional methods. The students demonstrated they had become able to use encyclopedias, online databases, and other references sources without the obligatory (and many times dreaded) reference lesson. The students who participated in this project showed evidence of retaining information after their projects were completed. For instance, one student pointed out cloud formations consistent with thunderstorms to her classmates. "Look," she said, "those clouds are dark grey and low to the ground - we must be getting ready for a thunderstorm, just like we learned in our weather unit." Another student was able to describe the function of an atlas when he overheard a classmate ask the LMS, "What's an atlas, again?" He was able to say, "Remember, we used those before. They are books that have maps in them."

Because collaboration of this type was new for both LMS and teacher, there were often times that roles defined during the planning process were not clearly implemented. Brown (2004) discusses the importance of clearly defined roles to the success of collaborative efforts. By having clearly defined roles, participants in a collaborative project can be

confident that their expertise is being wisely utilized and that each member is contributing in an equitable manner.

Role definition was not limited to the teacher and LMS, however. Group roles for the students were essential to fostering a positive group dynamic. This was not part of the original unit plan but developed as needs arose. The LMS and the teacher recognized that in addition to the students learning about the characteristics of severe weather, the LMS and teacher would also need to teach students how to become more independent in their own learning activities (Bush, 2003) a target literacy skill in the Information Literacy Standards (AASL and ABCT, 1998). By assigning roles to each of the members of the research groups, the LMS and teacher modeled the expectations that the students would be able to manage their own learning activities. Since the students fulfilled the requirements of these roles, the teacher and the LMS were then more available to assist them when difficulties arose during research and writing activities.

Modifications for the Future. The teacher and the LMS identified some common concerns about the unit implementation. Each commented that the unit took longer to complete than they had initially planned. Both were able to modify their schedules to allow students to finish but also felt that planning for the additional time required would make future unit implementation smoother. Future collaboration projects such as this are likely to include more time for students to work in classroom and less time spent on proofreading and editing.

Also, they both noted that the pace of individual groups varied widely. Accommodating the different paces of groups for future units is a planning priority for both professionals. In addition, the teacher and the LMS noticed difficulties relating to the procedures associated with citing sources. Students initially had a hard time understanding the rationale behind and process of citing references. To prepare students for this activity, the LMS plans to incorporate citation into her information literacy lessons during the following school year. In addition to making the purpose of certain research-related activities clearer to the students, the teacher and the LMS need to have more clearly defined roles for each other in future collaborative projects.

As this was the first collaboration experience for each of the adults involved, the teacher and LMS would often discuss roles *during* the project. While the classroom teacher stated willingness to do anything the LMS suggested during the collaborative meetings, both educators felt that their roles were too undefined at times. Future collaborative projects will see a more clearly defined job description at the onset for both the LMS and the teacher. This will prevent either participant from taking on too much or becoming to overextended as the students are engaged in these complex research activities.

Regarding role definition, Brown (2004) asserts, "Sometimes the [library media specialist] may need to recognize the importance of taking a subordinate role in the project" (p. 15). Modifying her role as the "editor" for this project was one of the first modifications the LMS

suggested when reflecting on the project. Rather than having the teacher assume this role, however, the LMS suggested that students participating in future projects be taught to assume the role of editor/proofreader. In addition to supporting additional curriculum requirements concerning spelling, grammar, and writing skills, this role can also serve to help students learn to manage their own learning processes. The teacher and the LMS speculate that the students were resistant to assuming this role during the weather project due to a lack of understanding of the importance of it. Therefore, the teacher and LMS plan to present the rationale for this phase to students earlier in the process so that they take ownership of the production aspect of their project work.

Implications for Practice. The experience of this teacher and LMS presents several implications for K-12 educators. First, the adults and students who took part in the unit deemed it to be successful, in spite of certain aspects that need to be modified for the future. First-time success is a powerful motivator that may permit subsequent attempts at tasks initially found to be difficult. Therefore, LMSs and teachers may want to consider embarking on collaborative project activities despite feelings of anxiety. School administrators also may want to consider the context of the library media program in relation to the organization of the entire school. Teachers and LMSs are more likely to collaborate in the implementation of projects such as the Severe Weather unit if the library schedule is flexibly scheduled. Flexible scheduling permits a variety of activities to take place that can positively impact student achievement (Lance, 2002).

Students can benefit from participating in projects that arise from collaboration between a teacher and library media specialist. Typically, classroom teachers interact with a group of students for a single academic year. Most library media specialists, however, interact with students across several academic years. The LMS is in a unique position to observe student development over time. This longitudinal interaction with students permits the LMS to contribute information about student needs, learning styles, personalities, and past academic experiences (Tschamler, 2002) to the collaborative effort.

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CHAPTER 10

THE COLLABORATIVE SCHOOL

DAVID V. LOERTSCHER

There was a riot in the virtual classroom. “Get off your ivory tower,” my graduate students were saying to me rather bluntly, “You are asking us to lead a charge for literacy into the kingdom of the classroom. Sorry, we’re not invited.” They went on describing how desperate classroom teachers are; how much pressure there is to perform; how much stress teachers feel; and how teachers really just want to be left alone to cover what will be on the test. Specialists keep out.

It seems that everyone has been trying to “fix” the classroom. If only those teachers would buckle down and “teach,” scores would rise and all would be well. Consider the loud voices from every camp:

- Governments are setting the standards, dictating the assessments and setting the bar, then backing it all up with threats.
- Researchers are pressed to find the “right ways” to teach and learn.
- Professional consultants, through their literature, point to various solutions: understanding by design, professional learning communities, differentiation, inquiry, and direct teaching, among others.

The various prescriptions for what ails the classroom teacher and the pressure to learn one technique, then another, and another makes teaching a very unattractive profession these days. Coupled with the changing nature of the students with diverse cultures, languages, and backgrounds, teachers are facing overwhelming expectations.

On another front, researchers are learning more and more about how the brain works and how it learns and responds to various stimuli. Thus, there is a plethora of books directed toward the classroom teacher about brain-ways of teaching. If we add the body of literature on learning styles to the mix, the teaching process has grown more and more complex over the past few decades. But we still rely on a single teacher in front of a classroom of 20-40 learners from diverse backgrounds.

Is there something wrong with this pressure on a single individual? As the world has become a complex information and technology environment, many other professions such

as medicine, science, business, manufacturing, and even agribusiness recognize that no one mind can "do it all." Many favor the team approach to accomplish work and make progress. We now think of medical teams, research groups, think tanks, business partnerships, and other group solutions when a single mind cannot know it all or get it all done. Yet, we still think of the single teacher in front of a single classroom. It is a deep-seated tradition. With the dawn of a flat world, it seems time to concentrate on providing every child with a world-class education and build the educational structure around this newly competitive individual. Perhaps it is time to think seriously about the team in education.

What does it take to educate the "whole child" as ASCD envisions?[28] Is there some merit in building an organization around the learner rather than requiring the learner to adjust to the organization we furnish that is founded on long-standing tradition?

Looking at the research connected to organization and leadership in schools, Tim Waters and Greg Cameron at McRel have developed The Balanced Leadership Framework™ that provides a number of strategies for designing a "purposeful community" or a collaborative bent on excellence.[29] Two of their characteristics are particularly attractive:

- The use of all available assets
- Collective efficacy

The vision here is to combine the tangible assets such as computers, the library, textbooks, and teaching supplies with the intangible assets such as leadership, strategy, innovation, and adaptability in a determined collaborative push toward excellence.

*The Outsourced Model***.** Over the last century, the school organization has built appendages to the classroom, each with a special but discrete function designed to supplement the classroom. We refer to various specialists who pull learners out of the classroom for specialized instruction. These professionals include librarians, technology specialists, literacy coaches (and other specialized coaches), counselors, nurses, and the fine arts teachers. There are organizational reasons to "outsource" the teaching of certain skills in order to build in planning periods for teachers or to fill out the number of periods in a school day. Teachers often complain about the number of "pull outs" that cut their teaching time, but the attraction of fewer students has often silenced criticism. Recently, with the pressure to teach basic skills, the amount of time devoted to the teaching of reading, math,

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28 The Whole Child: An Initiative of ASCD. Find at ascd.org.

29 Waters, Tim and Greg Cameron. The Balanced Leadership Framework™ Denver, CO: McRel, 2007. 64p. See the description of the entire purposeful community on pp. 45-53.

and now science has increased, but at the expense of corollary disciplines such as fine arts, social studies, and other electives.

The Role of Specialists. Over the years, specialists of many stripes have developed what they consider essential elements of a world-class learner. Examples include:

- Librarians who advocate information literacy, the love of reading, and the wise use of technology.
- Technology leaders who seek the wise use of a wide variety of technologies required for participation in a 21st century environment.
- Literacy coaches who wish every learner to be a skilled and fluent reader
- Counselors who want learners to look toward the future as part of current behavior and career planning.
- Nurses and many PE teachers who are concerned with wellness rather than just prowess on the athletic field or the treating of a current physical problem.
- Art, music, and drama specialists who want learners to experience the best of culture.

As one examines the literature of these specialists, one finds the idea of collaboration a common element. Most specialists have been taught in their fields that one of their roles is to collaborate with classroom teachers and to integrate their specialized agendas with the agenda of the classroom teacher. Yet, these specialists have a common complaint: they can't seem to get into the kingdom.

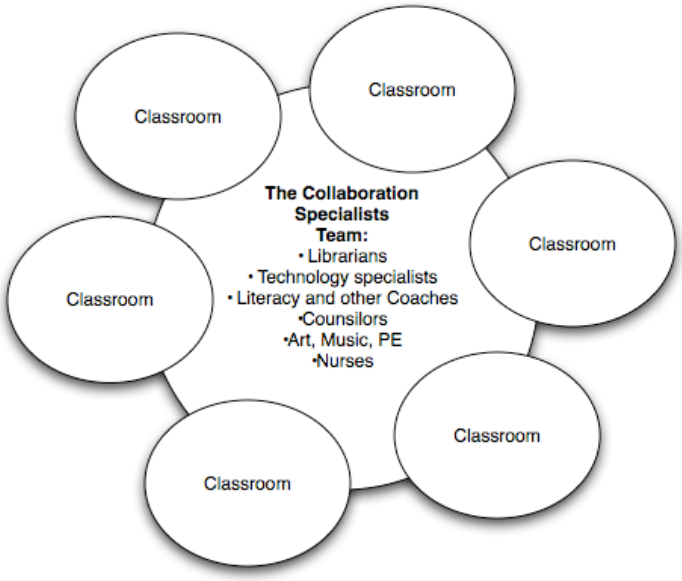
Lacking resources for a full cohort of specialists, principals often move positions around. Because a literacy coach is hired, a librarian is fired. Because two salaries are not available, a technology leader, librarian, or fine arts specialist serves more than one school in an attempt to maintain the outsourcing of popular programs with parents. But in spreading the specialists so thin, most of their impact is lost.

The Mud Puddles of Specialists. The various specialists in a school building have varying challenges that overwhelm them and gobble up every available minute, or so it seems. There is always a computer to be fixed, books to be shelved, another child in physical distress, or a misbehaving student to be dealt with. During a typical day, so many "emergencies" develop that specialists, over-tired from run, run, run often admit that they contributed little to the excellence of the school. In times of financial stress, when specialists are discontinued, the specialist's role is pushed back to the classroom teacher who now must teach art, reading skills, information literacy, or careers. It doesn't happen.

Consider a Collaborative Model. If the McRel survey of research on leaderships is as strong as it appears toward a collaborative model, purposeful community[30] or the professional learning community model of the Dufour's,[31] then a structured "tweak" of the entire school community that collaboratively builds around the needs of the learner is not only possible but desirable.

Collaboration is not a new concept in schools. Everyone seems to talk about it as a success factor, but in practice, the specialists of the school are not envisioned as essential players. Occasionally in the professional literature, a mention will be made of a specialist doing this or contributing that. Most often they are just ignored. In my own interviews of the authors of many professional books, the authors write directly to the classroom teacher and "presume," but don't mention, the existence of the specialist. Magically, there is supposed to be a reliable computer network in place; of course there are 10,000 books down the hall in the library that can provide multiple reading levels when the textbook doesn't work; or, theoretically there is a coach beside the teacher as they struggle to build tough reading skills; but these are only theoretical ideas that somehow don't really happen.

Consider an organizational structure where true collaboration among the entire faculty of the school can and does happen:



The Collaborative School Culture

For units of instruction where deep understanding is essential, the classroom teacher links into the specialist pool to collaboratively design, team teach, and assess instructional units.

30 Check the McRel.org website for the Balanced Leadership Profile.

31 DuFour, Richard, Rebert Eaker, and Rebecca DuFour. On Common Ground: The Power of Professional Learning Communities. National Educational Services, 2005. Also check our the numerous books by the DuFours published by Solution Tree.

In this true collaborative culture, teachers don't just reach out to a friend at the same grade level or department for support, they naturally expect and reach for the expertise of the specialist team of the school. As teachers, their classroom merges with the library, the computer lab, and the art and music room to embrace whatever resources are available and to team-teach alongside various specialists. In other words, teachers and specialists combine their talents to reach every learner.

In such a school, administrators structure the organization around planning and collaboration, not just among grade level teams or departments, but in such a way that it is natural for one or more specialists to be integrated into the planning, teaching, and assessment of learning experiences. The idea that two or more heads are better than one becomes a reality, not a buzzword.

In the collaborative school, the idea of integration is natural. Together the teacher and the librarian help learners understand the major elements of the Civil War as they learn research skills to answer essential questions. In such an experience, the content information is boosted by learning or research skills. Thus, I as a student know how to learn and I learn more in less time because I have the tools to learn and the adults to mentor me through the process. If the Civil War unit includes visual timelines of factors such as battles, political developments, the role of slaves over the time of war, the economic factors over time, along with the music and art of the period, then we as students may have to go to the computer lab to learn to make timeline videos that we will upload to YouTube; we may have to know how to research in the databases of the Library of Congress; we may need to appreciate the spirituals of the slaves; or we may need to include other aspects of the period as we build a deep understanding of that period and how it affects the way we still live and work today. As a learner, I recognize that I have multiple adults mentoring and coaching me through a learning experience and I am accountable to them all.

In such a school, professional development happens when specialists and teachers team up. The teacher learns how to help build a wiki. The technologist discovers new ideas and resources for teaching how the North won the Battle of Gettysburg. The nurse helps teachers and students understand that to be wounded was almost as bad as getting killed outright (a good reason that we all wash our hands frequently every day). In other words, the specialists and teachers build on each other's expertise as they combine their agendas. The whole is greater than the sum of its parts.

Specialists teach their knowledge to classroom teachers; classroom teachers teach their learning strategies to the specialists. Students share their expertise with the adults, the adults with the learners. We become a teaching team and a learning community.

Are we saying that every classroom teacher would have a cadre of specialists swarming over every learner? Actually, there are schools with a sizeable number of specialists already functioning.[32] We are back to the question about asking what a world-class education costs and then building an organization around that idea. One only need to ask teachers who have full support to discover why they value their jobs in such schools. And, the taxpayers in those schools realize that their sacrifice is part of a long-standing tradition that the current generation boosts the next one to heights they themselves were unable to attain.

In almost every school, there are specialists performing their roles independent of the classroom. Perhaps it is time to make those specialists a team among themselves and an integrated team with the classroom teacher.

How It Works

The specialists of the school should be organized into a team that is anxious to collaborate in the classroom to improve learning experiences. This presumes that each member of the specialist team is already a good teacher in their own right and understands instructional design as it is practiced in the school. Each specialist is selected for their position based on their competence not only in library, technology, art, counseling, or other areas, but for their ability to collaborate and team-teach. As a team, they might even have offices close to one another in a library that has been transformed into a learning/consultancy center. They would form a professional learning community as they learn the art of collaboration.

Working from a curriculum map, both teachers and specialists begin to understand what will be taught across the school year and how both the objectives of the classroom and the agendas of the specialists will be integrated to plan what topics will be covered and which ones will be developed more in-depth. The specialists will probably choose the more in-depth units in which to combine their agendas with those of the classroom.

Before a unit begins, the classroom teacher or group of teachers would meet with one or more specialists to plan the unit, including the standards to be achieved, the joint assessment, and the team-taught learning activities. Each phase of the learning activity is the concern of the whole team, so as administrators are observing and encouraging, it becomes obvious that the team is pushing and achieving together. Each successful unit becomes a showcase of the possible. Less successful interactions are revised and reinvented. It is a series of one, then another, and another successful and documented experience. Accounts of such collaborative units can be seen at http://davidvl.or under the

32 For example, at Hunderton Central High School in Flemington NJ, there are six persons on the library staff and another dozen on the technology staff so that there are enough consultants to service the needs of both teachers and students.

heading of action research. Here, teachers and librarians examine collaborative teaching and its effect on learning.

As the popularity of collaboration grows, the number of specialists and time they have to collaborate becomes an issue. In this case, the specialist team adopts the following model:

- We plan together.
- We team-teach the activities.
- We jointly assess the results.
- We specialists release the unit back to the classroom teacher.

As an example, a teacher is faced with teaching the colonial period and a textbook that most students cannot understand. Books, articles, and multimedia on various reading levels are gathered with help from the librarian and the teacher and librarian conduct "literature circles" where groups or pairs of students try to understand life in the northern, middle, and southern colonies. Wanting the learners to understand the diversity of life in the colonies, the technology specialist teaches both the adults and the students how to enter facts into a collaboratively-built Google spreadsheet. The entire group then analyzes the columns and rows to compare and contrast what is going on in the various sections of the new world.

At the end of the unit, the teacher is happy because the English language learners actually understand the basic elements of the colonial period. The librarian is pleased because of the opportunity to push wide reading across all reading levels. The technology leader is happy that both adults and students have learned a new technology, but more importantly, have used that technology for a group compare and contrast to see a bigger picture of colonial life. As the team surveys the assessments, they take pride in the percentage of the learners who not only met the objectives, but exceeded them. When the same unit comes around the next year, the team opts to let the teacher do the colonial period alone because she has both the materials and the knowledge of the technology in her repertoire. Instead, they decide to partner on the development of the Revolutionary War unit. The group has used the team-release model and is able to develop more and better learning experiences over time.

Another strategy of the specialist team is to work with groups of teachers teaching the same topic across grade levels, with a department, or even with two departments (an integration of social studies and literature as an example). The goal of the specialist team becomes a bragging list of memorable learning experiences across the disciplines and across the grade levels of the school. These units are showcased to the community as examples of exemplary teaching and learning. The team has worked hard to insure that every learner not only meets, but also exceeds basic standards. Perhaps, this is the wole

point: teams don't just strive to meet standards for every learner; they push on beyond toward excellence.

The collaborative school requires a shift in perspective, not just of the classroom teacher, but by the specialists themselves who may be quite accustomed to working in isolation. A few expectations might be in order for all the team players:

Expectations of Specialists in the Collaborative School

- Build your skill as an excellent teacher in addition to the skills you possess as a specialist. You are a "teaching" specialist just as interested in the content learning of the learning experience as you are in teaching about your specialty.
- Build the skills of team-teaching rather than "turn" teaching.
- Be a creative, caring, and hardworking team partner.
- Learn how to reach learners with special problems until you have confidence that the team is meeting the needs of every learner in the classroom.
- Learn how to integrate your own agenda as a specialist into the agenda of the classroom teacher.
- Teach the teacher your expertise and learn from the teacher all you can about their specialty so you can pull on each other's strengths and develop ones in common.
- Figure out how to spend half the time you have in a school teaming and the other half doing your specialty role managing the computer labor or library media center, etc.).

Expectations of Classroom Teachers

- Build your expectations of collaboration with the idea that two or more heads are better than one.
- Cultivate the idea that drawing on another's strengths is not a sign of weakness.
- Ask the specialist to join you in collaborative partnership that desires to push egos aside and focus on increased learning opportunities for students.
- Teach specialists about your expertise and learn their expertise so that all the adults become knowledgeable coaches of learners.
- Realize that while planning time may be increased, teaming with specialists is more likely to produce memorable learning experiences than solo performances.

Expectations of Administrators

- Hire specialists who are excellent teachers in addition to being good at their specialty.
- Begin with the expectation that each specialist will spend half their time in the building collaborating on the planning, teaching, and assessment of learning activities with either single classroom teachers or groups of teachers.
- Work with the specialists to streamline their outsourced organizational responsibilities so that the time to collaborate is available.
- Create an organizational structure where both classroom teachers and specialists have the time to meet, plan, and evaluate their collaborative activities.
- Encourage higher learning opportunities by being willing to step outside long-lived school protocols and outdated methodologies.

Conclusion. As we all learn how to function and prosper in a global community, we think in terms of constantly reinventing the way we work, learn, and communicate. Old industrial models give way to new methods of productivity where the lives of everyone are enhanced. Such 21st century aspirations require educators both to ask for more resources, and to use also the resources they have in better and better ways.

For too long, the specialists in a school have been ignored and under-appreciated because they were outsource agents that were like butter on the bread: nice to have but not essential. In the collaborative school, the specialists form a team alongside the teaching staff with mutual expectations, responsibilities, and the motivation to serve every learner. It is a resource in every school that has long been ignored. It is a resource that can lift learning opportunities to new heights. It seems like an idea worth trying.

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Observation Guide:

During the observation period, the researcher will construct observation notes of the following activities or behaviors:

Librarian observations:

- Helping behaviors (e.g. assisting w/ assignment)
- Directing behaviors (e.g. showing where a book is shelved)
- Managing behaviors (e.g. asking for student passes)
- Instructional behaviors (e.g. teaching use of catalog)
- Position of TL in library (e.g. in stacks, behind desk)
- Other activities (provide descriptions)

Class Behaviors

- How the class enters, leaves the library
- Evidence of preparation for the assignment
- Evidence of library procedures, pre-knowledge of library routines

Student observations:

- Student behaviors with resources (e.g. book or internet use)
- Student interpersonal (e.g. collaborative work, assisting, socializing)
- Interaction with Librarian (describe)

Teacher/Adult observations:

- Interaction with Librarian (describe)
- Interaction with students in class.

Documents Obtained with Teacher consent:

- Sample assignment, assignment rubric

Collaborative Teacher-librarian Interview Protocol:

This instrument is used after the observed library activity. The interview is completed with the teacher-librarian only.

Questions:

1. I'd like to begin by asking you to summarize the visit to the library and the activity the class performed.

2. How did you prepare for this activity with the teacher?

3. What aspects of the activity/visit worked well?

4. What aspects of the activity/visit did not work well?

5. How did this library activity support student learning?

6. How will you follow-up this activity? What are the next steps?

7. Was this visit typical of the class' activities in the library? If not, how was it different?

8. How often does this teacher bring his/her class to the library?

9. How often does this teacher send individual students to the library?

10. Aside from class visits like this one, in what other ways do you work with this teacher?

Wrap-Up:

Is there anything else that I didn't ask that you would like to tell me?

Collaborative Classroom Teacher Interview Protocol:

This instrument is used after the observed library activity. The interview is completed with the classroom teacher only.

Questions:

1. I'd like to begin by asking you to summarize the visit to the library and the activity the class performed.
2. How did you prepare for this activity with the librarian?
3. What aspects of the activity/visit worked well?
4. What aspects of the activity/visit did not work well?
5. How does this activity support student learning?
6. How will you follow-up with this activity? What are the next steps?
7. Was this visit typical of the class' activities in the library? If not, how was it different?
8. How often do you take the class to the library?
9. How often do you send individual students to the library?
10. Aside from class visits like this one, in what other ways do you work with the librarian and/or library resources?

Wrap-Up:

Is there anything else that I didn't ask that you would like to tell me?

Classroom Teacher Interview Protocol:

This instrument is used with classroom teachers selected to discuss their perceptions and uses of the school library.

Questions:

1. How have you been involved in the transition to small schools/ academies/ learning communities?
2. Do you teach differently since the change to small schools/ academies/ learning communities? Alternate: Do you teach differently compared to other teaching experiences?

   2.1 Do students learn differently in this environment?
3. What is the role of the library and librarian in your school? Are those roles changing with small schools?
4. How skilled are your students at finding information? At evaluating information?

   4.1 What skills are they missing?

   4.2 What's the best way to teach them these skills?
5. Do you create some of your class assignments with the intent that students will use the school library?

   5.1 How often do you bring the class to the library?

   5.2 Does the library have the right materials?

   5.3 Do you work with the librarian to create the assignment?
6. In a small schools environment, has the demand changed for using the library? Prompts: collections, space, computers, etc.?

   6.1 Do the different schools/ academies / communities have different needs?
7. What are the strengths of your high school library? What are the weaknesses?

Is there anything else you'd like to tell me about the teacher-librarian or library?

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