

# Knowledge Building in the Learning Commons:

**Moving from Research to Practice  
to Close the Achievement Gap**

**Papers of the Treasure Mountain Research Retreat #17**

**Oct. 26-27, 2011**

**Osseo, Minnesota**

**Edited by  
David V. Loertscher  
Blanche Woolls**



**Learning Commons Press**



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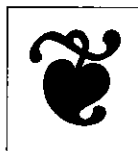
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## Knowledge Building and the Learning Commons<sup>1</sup>

David V. Loertscher  
San José State University

Carol Koechlin

Sandi Zwaan

Esther Rosenfeld  
Consultants, Toronto, Canada

*How do we prepare students to be active participants in their future?*

*Above & Beyond tells the story of how the 4Cs -- communication, collaboration, critical thinking and creativity - complement and strengthen traditional school instruction.*

*<http://www.youtube.com/watch?v=7KMM387HNQk> Consider the skills featured in this film and Knowledge Building in the Learning Commons as this chapter unfolds.*

Historically, there has often been a division between those who feel that young people should have a broad introduction to content in various subject areas versus those who believe that deep understanding and knowing how to learn are paramount. In the past decade, widespread testing that has focused on factual knowledge has driven many teachers to emphasize content coverage over inquiry. The concept of a Learning Commons argues for the development of personal expertise and collaborative construction of deep understanding.

Teachers and students experience a pedagogical merger of classrooms and library/lab facilities. As an extension of all classrooms, the Learning Commons can round out the entire spectrum of learning. The use of guided inquiry and other problem-based learning experiences in the Learning Commons not only engages students but also effectively releases students to take command of their own learning, doing, knowledge building and sharing. This approach prevails for formal education, online education, or informal learning experiences.

In both the Open Commons and the Experimental Learning Center, a continuous stream of learning units are brought by classroom teachers to take advantage of various learning specialists and the rich resources and technologies which are available. Whether experimental in nature or "mature" learning units, the focus is on inquiry-

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<sup>1</sup> This paper is Chapter 3 from *The New Learning Commons Where Learners Win! Reinventing School Libraries and Computer Labs*, 2nd Edition. Learning Commons Press, 2011. Available at <http://www.lmcsource.com>

based learning journeys. These journeys can be personal in nature, small-group projects, or whole-class learning experiences guided by the classroom teacher and one or more learning specialists. In the Experimental Learning Center, new ideas, strategies, experiments, and initiatives are being tested and modeled for the school. The major question is whether learners thrive better than with previous strategies. In the Open Commons, previously tested strategies are practiced on a regular basis.

For any of the learning specialists and, in particular, the teacher librarian, the curriculum of the specialist is being integrated with the learning standards required by the classroom teacher. This “just in time” and “need to know” instruction helps learners build their knowledge base and at the same time helps them learn more efficiently. Examples of such integration might include students learning how to judge the differences between fact and opinion as a political issue is being explored; students learning how to think critically about conflicting media messages encountered on the topic; students learning how to paraphrase by selecting major ideas in a variety of texts; and students learning how to use a wiki to collaboratively build a case for a position the group is creating. In another example, the reading specialist might be assisting learners handle more and more complex texts so that the subject at hand is more easily understood. As these learning journeys occur, the adults are watching, coaching, and assessing progress to insure that every learner either meets or exceeds the learning expectations. In other words, the Learning Commons supports a school-wide culture of inquiry fostering ‘habits of mind’ and ‘learning dispositions’ conducive to success.

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Challenge Many classroom teachers have a different mindset.

One of the problems teacher librarians or any other specialist face in trying to align with classroom program is that it is often based on a behaviorist approach where the adult coaches prescribe:

- What students must learn, both broadly and in depth
- What skills students must build and be able to demonstrate
- Products that will demonstrate the students’ knowledge and skills
- The acceptable level of performance on any assessment

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Critics point out that such education constitutes a “cookie cutter” approach where gifted students are unchallenged, and average students are bored because the emphasis is on bringing the challenged up to an acceptable bar. In this scenario, the teacher librarian works in the supportive role of helping students reach benchmarks or minimums through information tasks that are often low level ‘find and deliver’ types of assignments.

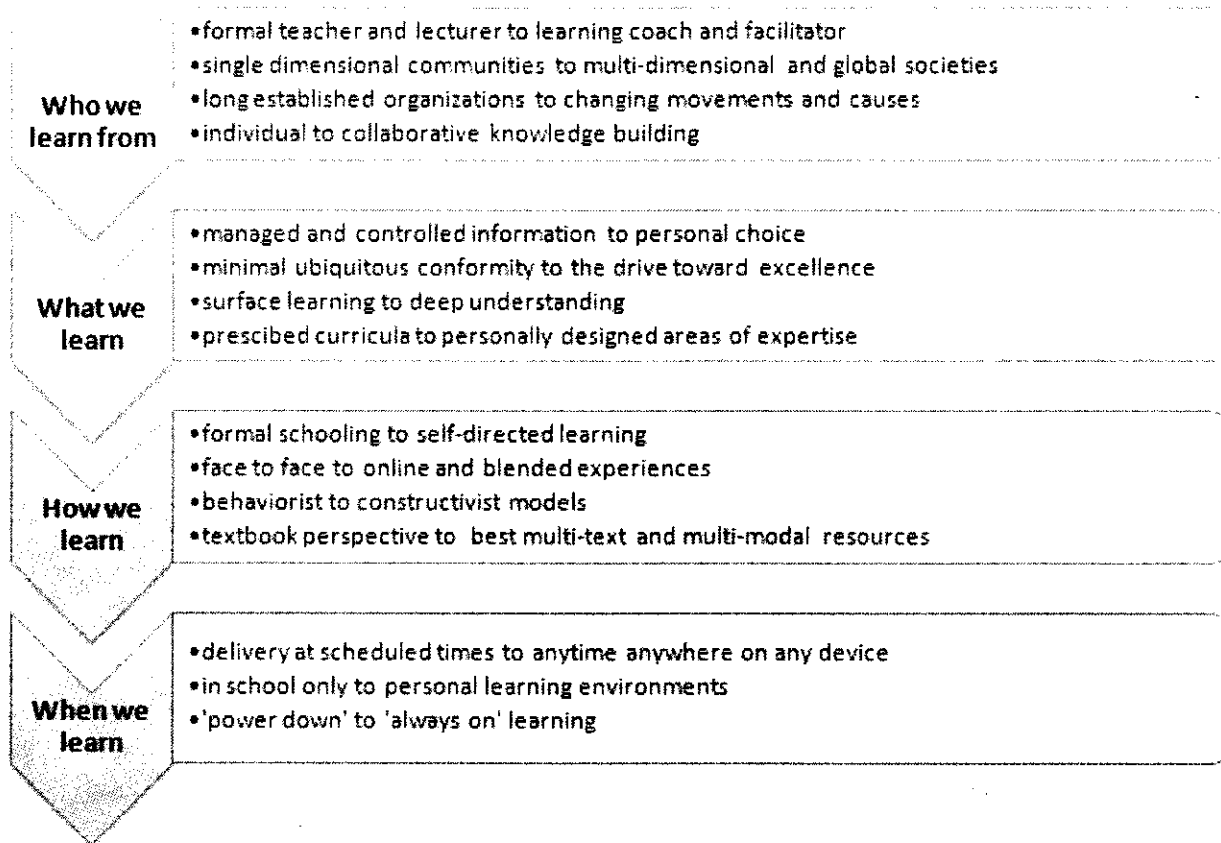
The Learning Commons recognizes the major shift in the worlds of information and technology. Today's learners are growing up in quite a different world than their adult coaches did, and face a very uncertain ever changing and challenging future. Here, the Learning Commons is "natural" as it focuses on constructivist ideas, learning literacies, and technologies, as learners gradually take more and more control over their learning. The emphasis is on turning superficial understanding that leads to uninformed decision making into thoughtful and deep understanding designed to develop an informed citizenry. The bottom line is that teacher librarians need to help teachers transform low level projects. As Alison Zmuda has stated at the Treasure Mountain research retreat in 2007, they cannot continue to be an "accomplice to mediocrity".

---

**Discussion Point** Many writers have explored the new digital generation and how today's learners exhibit quite different behaviors than in previous generations. Nicholas Carr points to these learning differences in an interesting video history of technologies and learning. <http://www.nicholasgarr.com/> As Carr points out, each major change in technology has had a deep impact on the way we learn. What are the implications for learning with new technologies in your school?

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## Evolution of Learning



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*Teachers who are shifting their practices to meet the needs of our times talk about how they're remixing the coverage of content with the uncovering of ideas and concepts, how they're balancing their time between being the "sage on the stage" who presents, explains, answers questions and being the "guide on the side," who supports students' research, discovery, and sharing of their own findings in learning projects. As one teacher has put it, "I had to unlearn the idea that teaching was about my content; I had to learn it was about **their** thinking and **their** skills."*  
Trilling and Fadel (2009, 39)

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As educators turn away from the prescriptive view of teaching and learning toward the more open view, the Learning Commons can contribute and thrive. The prescriptive stance seems to exist in a narrow information environment while the constructivist stance flourishes in an expanded information and technological environment.



Learners of today need to build enough personal expertise to enable them to succeed in a world where personal efforts are combined to build collaborative intelligence. For example, a great film such as the movie, *UP*, requires the combined expertise of engineers, animators, script writers, directors, and many others who develop what a single individual could not have produced. Forecasters of the future herald personal expertise building as a life-long endeavor in view of the rapid change across many employment sectors.

**Digging Deeper** How can the Learning Commons help learners build individual expertise?

An interesting example is provided by Salman Khan, a former Wall Street hedge fund analyst who has used his personal mathematical prowess and teaching method to create brief mathematical video demonstrations. His TED talk is at: <http://www.youtube.com/watch?v=nTFEUsudhfs>

In a radical career switch, Salman Khan has developed the Khan Academy, [www.khanacademy.org](http://www.khanacademy.org), a full organization devoted to teaching basic mathematical ideas and essential skills using short online video modules complete with repeatable tests. The academy has expanded to include video modules in history, finance, physics, chemistry, biology, astronomy, economics and computer science. These free YouTube videos have been an online sensation and have inspired a practice known as Flip Teaching where content and skill development happens as homework, and where teachers are freed up during class time to engage the learners in more constructivist projects. For other classroom teachers' experiences using the Flip Classroom, see: <http://teachingwithted.pbworks.com/w/page/37315118/Flipping-the-Classroom> and locate the Flipped Classroom on the following blog: <https://usergeneratededucation.wordpress.com/>

**Challenge: Invite students to surprise you!**

Here is the story of a teacher who supported students in their desire to teach others as Salman Khan did. <http://mindshift.kqed.org/2011/08/move-over-sal-khan-sixth-graders-create-their-own-math-videos/>

His advice for other teachers, "Don't put technology behind glass. Let them touch the computer, ..... That's how the world changed for me, for all of us. If

you give kids a little bit of trust and let them try out some stuff, they're going to come up with fascinating things that will surprise you."

Bernard (2011)

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### *Technology Transformed Learning Environments*

*In fact, in the tech-infused learning environment, the teacher should regularly be saying, "Surprise me!" The bottom line is that we will see learners becoming responsible to their peers, audiences, and communities for their learning. ...and that responsibility will not be based on a measure of their learning (how much or how well), but on what they have learned and what they can do with what they've learned.*

David Warlick (2010)

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In the world of the Learning Commons, both adults and learners stimulate each other in the ownership of their personal learning and in the creation of expertise, creativity, in problem solving, and in the development of collaborative intelligence. Thus, if you want to tour the school whether as a physical place or a virtual place, begin at the Learning Commons to get a glimpse of what excellence looks like in teaching and learning.

---

#### Discussion Point: Why the focus on Inquiry and Problem-Based Learning?

Lest the reader debunk inquiry or project-based learning as having been tried before, consider John Larner's list of five major misconceptions about project based learning in his article for *Edutopia* at:

<http://www.edutopia.org/blog/debunking-five-pbl-myths-john-larner>

At Lehman's Science Leadership Academy, a public high school in Philadelphia where Larner is the principal, students develop five core values that turn them from passive students into enthusiastic and dedicated students. These values are:

- Inquiry
- Research
- Collaboration

- Presentation
- Reflection

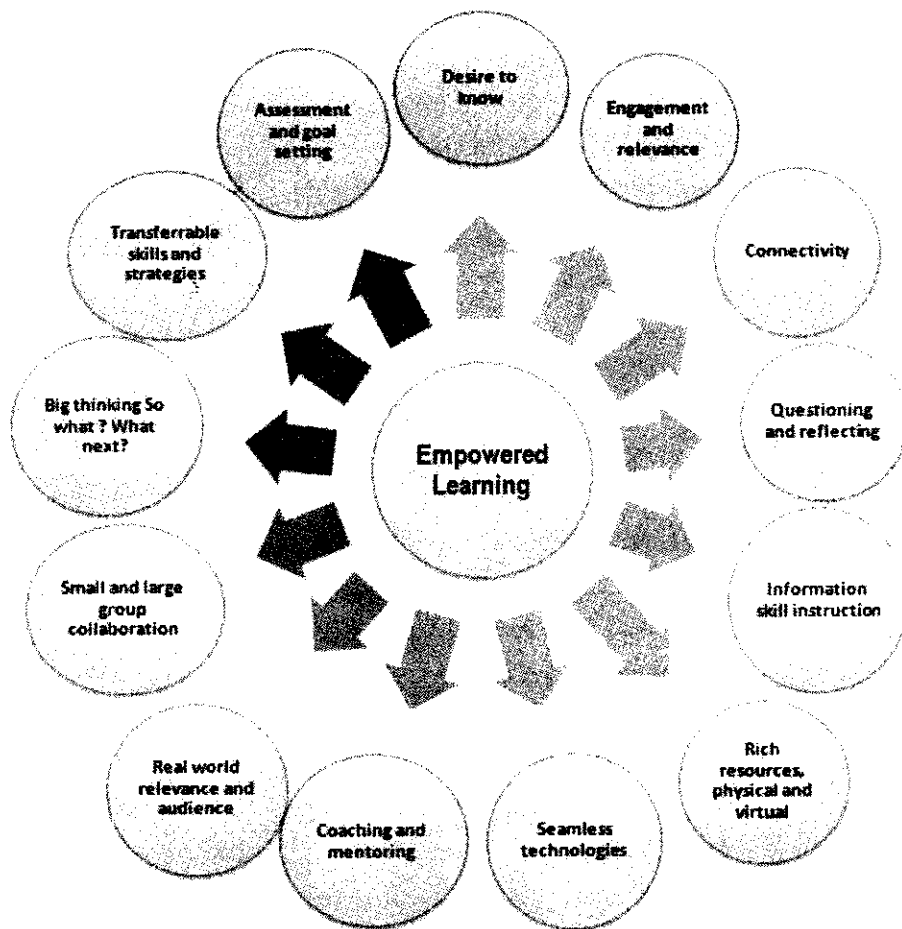
As one interviews the students at this high school, the sense is clear that individual students have taken command of their own learning. They keep reminding us that they are a different breed of learner:

[http://www.teachertube.com/viewVideo.php?video\\_id=448&title=Pay\\_Attention](http://www.teachertube.com/viewVideo.php?video_id=448&title=Pay_Attention)

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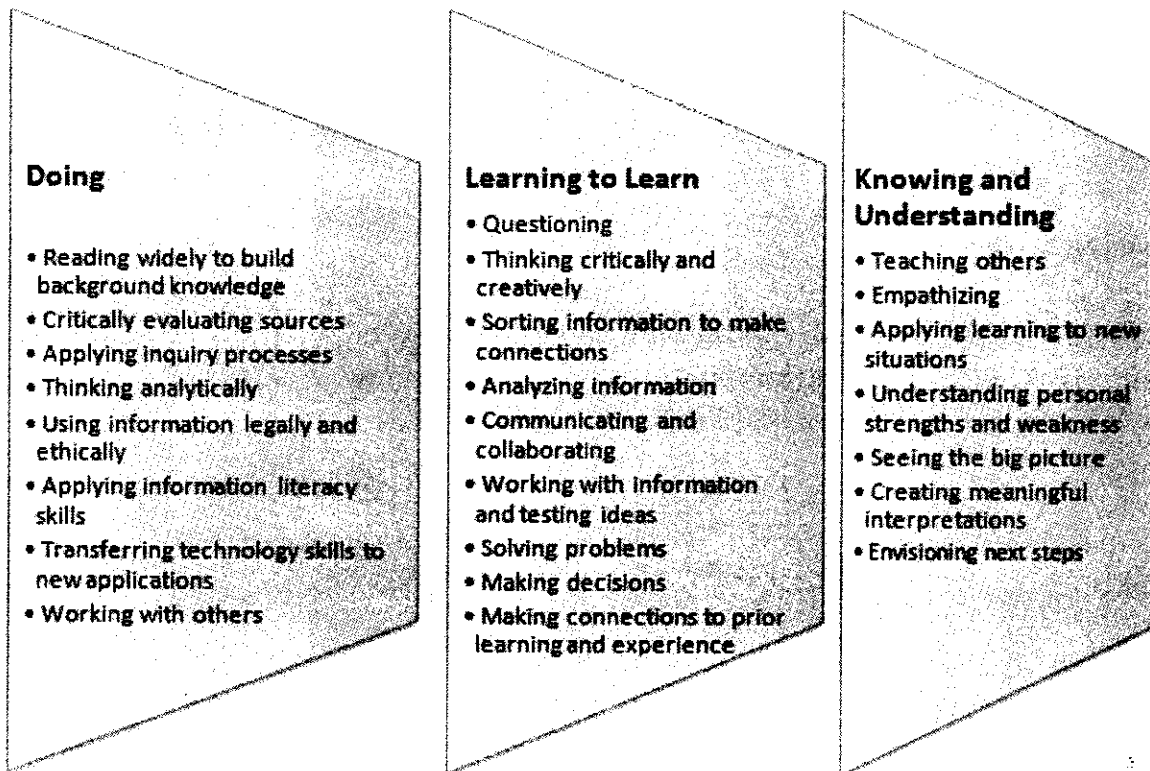
### Focusing on the Learner

Inquiry in the Learning Commons is a dynamic learner centered process. Teacher librarians, other faculty, and support staff provide 'just in time' and 'just for me' support and learning advice. Evidence of success includes:



As suggested by major foundational documents, learning becomes a quest, a journey. We can measure success in this journey by considering the following indicators:

### Knowledge Building in the Learning Commons - Indicators of Learner Success



### Fostering Self-directed Learners

For every learner in this new information and technological environment, the essential components of expertise are organization, efficiency, and control. So, whether the learner is a child, a teen, or an adult, the ability to build one's knowledge, track it, and share it, can be beyond even the most organized mind. All learners need strategies and technology to record what they know, to see how they are progressing, and to discover how to build both a private organizational routine and a public face for what they know and are able to do. As the Internet has grown, so have the tools to handle the onslaught of information. More on this will be discussed in the technology chapter and the personal learning environments chapter of this book, but the essential idea belongs here.

- **Personal Organization Spaces** The tools now exist to help every learner come into command of their own information space. Learners can use such tools as an iGoogle page, a Start Page (in Google Apps for Education), a LiveBinder, a private web site, wiki, or blog to be their personal and private or semi-private place where they keep themselves organized. Here, they can have projects they are working on, school assignments, calendars, voices they wish to pay attention to on a regular basis, family stuff, and fun - whatever they need to help them cope with family, school/work, and personal interests. Such an information space is their own filter of the information world. They let in what they want, communicate with whomever they please, explore as they wish, and shut out unwanted pressures vying for their attention. For an example, see *Welcome to my Personal Learning Environment* <http://www.youtube.com/watch?v=YElS3tq5wIY>
- **Personal Technology Access.** All learners must build access to the information and technology they need to access and flourish in the current world. They figure out what devices they will own, how they can be connected to networks in a reliable fashion, and how they are going to exhibit digital citizenship in the virtual world, just as they are learning to succeed in the physical world. As well, they need to protect themselves and their work from technological malfunction or malicious snooping. They need to build a cadre of tools that help them be efficient and boost their ability to learn quickly and deeply. Of course, they will need reliable mentoring from peers and coaches in order to keep up. In today's world, this is the construction of a personal learning network.
- **Building a Public Face and Image.** Learners are conscious of the public nature of the web and how to control what others know about their personal expertise and who they really are. The tools they need to enable them to build a personal e-portfolio of what they know and can do are readily available and free. Some refer to this personal e-portfolio as digital curation, the preservation of learners and their accomplishments; their projects; their interests; their abilities; and, hopefully, the real people. This is necessary for both their personal interests and their academic prowess. For instance, a learner's collaborative projects at school may appear on the school's Virtual Learning Commons, but they also appear on the learner's personal website or e-portfolio.

**In other words, Learners learn how to be in control,** understanding the major differences between private, partial, and public sharing in a digital world. They are their own librarians. They are their own publishers. They are their own communicators. They pay attention to what really matters to them. They know

where they are going and how to get there. But they also understand their role in community and culture.

See an example of learner led education: *The Independent Project*

[http://www.youtube.com/watch?v=MTmH1wS2NJY&feature=player\\_embedded#at=2](http://www.youtube.com/watch?v=MTmH1wS2NJY&feature=player_embedded#at=2)

See also: *What did you do in school today?* View the student interview video - *A Student's Role in Teacher engagement*

<http://www.cea-ace.ca/programs-initiatives/wdydist>

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**Resource TIP In Command! *Kids and Teens Build and Manage Their Own Information Spaces, And... Learn to Manage Themselves in Those Spaces.***

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## **Empowering the Teaching Team**

As the classroom teacher and the learning specialists build and deliver these collaborative learning experiences, they are constantly assessing their own progress to ensure they are:

- Guiding and supporting **inquiry learning**
- Stimulating **critical and creative thinking**
- Building cross **curricular literacy skills and new literacies**
- **Engaging and effective**
- Empowering students to build **deeper understanding**
- Providing **knowledge building** learning experiences
- Employing a framework for designing **successful assignments**
- Effectively utilizing information and technology **rich learning environments**
- Providing **differentiated instruction** to ensure learning success for all
- Utilizing current technologies to **enhance the learning process**
- Stimulating excellent performance on both **formative and summative assessments** of either content knowledge or learning skills

Both the specialists and the classroom teacher follow the advice of W. James Popham as they watch a learning experience unfold. He suggests four levels of formative assessment that monitor the learning experience as it happens.

1. Changing the structure of the learning experience if the learners are not building the sub-skills needed to accomplish the larger goal
2. Learners changing their learning to learn strategies as they progress through a learning experience.
3. The whole classroom/Learning Commons atmosphere changes to accomplish a particular learning experience and experiences over time.
4. Changes occur in the entire school climate as more effective strategies are developed along the way.

W. James Popham (2008, 53)

### **Creating Collaborative Environments and Knowledge Building Centers**

One of the best ways to create engaging project or problem based learning experiences is to build them within a collaborative digital environment. This has become very easy to do using a variety of Web 2.0 tools that are free and available 24/7 on almost any digital device. When there is a collaborative digital environment, everyone, including learners and adults can be working together. So, instead of the teacher using the Internet to provide a one-way assignment stream with perhaps lecture and submission of work with assessment feedback, the digital learning experience provides a place where everyone is talking, working, helping, constructing, submitting, critiquing, and producing resulting in assessment. This is true whether the class is a face to face one or totally online or mixed.

We recommend the use of Google Sites as a website where the collaborative learning experience happens. Other technologies such as Moodle, blogs, or wikis can also be used. Below is a picture of the template for constructing what we term knowledge building centers. The template can be downloaded at:

#### [Virtual Knowledge Building Center Template](#)

In the center of the template, the adults put the project question and then around that problem description are "rooms" where the learners and adults work together from the beginning of the project until its conclusion.

# Knowledge Building Center

Search this site

Topic of Assignment  
(edit this line...)

- Assessment
- Calendar
- Comments, Questions, and Tips About the Assignment
- Communication
- Lesson Plans
- Models
- Museum
- Products
- Reflections
- Resources
- Tools, Tutorials
- Tours
- Work Spaces
- Sitemap

Topic of Assignment (edit this line...)

Here is our home for building knowledge together about our topic. Please use and contribute helps, tools, ideas, comments, and your finished project.

Use the various links around the page to help yourself and others.

**Tools, Tutorials**

Put your assignment, essential question, problem, challenge, or a student-constructed challenge here.

**Resources**

**Work Spaces**

**Products**

**Assessment**

**Models**

**Calendar**

**Museum**

**Communication**

**Lesson Plans**

**Tours**

**Reflection**

**Comments, Questions, and Tips About the Assignment**

Sign In | Reset Site Activity | Terms | Report Abuse | Print Page | Powered by Google Sites

Examples of constructed learning experiences using the knowledge building center format have been constructed by graduate students at San Jose State University as they have transformed older style learning experiences into inquiry projects. Many of these transformations are available at the following website (note: the higher the transformation number, the more developed the learning experience is. A Module 3 learning experience is the most developed of all). Start your examination at the lesson plans tab.

<https://spreadsheets.google.com/cc?key=0AkkdWYq2f0WvdENEZmpJa0NyTHF0MzJndktIejV3dkE&hl=en#gid=0>

An example of an adaptation of the template shows a knowledge building center where adults and students are recreating the school yard.




Yard Plan Search this site

**The Democratic School Yard**

How can we make recess fair and fun for everyone?

Democracy is an important facet of our lives as American citizens. We can see democracy in action on a large scale in our national and local governments and on a smaller scale in our everyday lives here at school. A successful democracy creates a peaceful and just environment of the people, by the people, and for the people.



**Questions to ask:**

- What are the roles of the citizens in a democracy?
- What are the responsibilities of the citizens in a democracy?

Comments, Questions, and Tips About the Assignment

As well as Google Sites and Moodle, Richard Byrne, who writes the Free Technology for Teachers blog, recommends the following tools:

- Sakai
- Canvas
- OLAT
- A Tutor
- Google's Cloud Course

The teacher librarian or the teacher technologist can easily design the virtual environment in such a way that collaboration is a "natural" rather than a forced experience. Who can help with the re-conceptualization of the school yard? Of course, the classroom teachers and the students, but also other adults could help. The teacher librarian? An outside expert? An administrator? Parents? A community planner? The special ed class at the school? Obviously, the environment itself encourages participation rather than just individuals filling out an assignment. And, the likelihood that this plan will actually be carried out makes the learning experience real and engaging.

In the next two sections, we will discuss the necessity of using sound instructional designs and a Big Think metacognitive activity at the end of the learning experience, but before we do that, consider the power of helping children and teens learn what collaborative intelligence and team functioning can do to elevate what we all know and can do.

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Digging Deeper Consider the following articles.....

<http://www.ere.net/2011/01/17/cross-functional-collaboration-discovering-its-value-and-the-genius-of-google/>

and also Christopher Barlow's white paper:

[http://issuu.com/gfbertini/docs/creativity\\_and\\_complexity\\_in\\_cross\\_functional\\_team?mode=a\\_p&wmode=0](http://issuu.com/gfbertini/docs/creativity_and_complexity_in_cross_functional_team?mode=a_p&wmode=0)



**globalearner** Alan November

#edtech #edchat Do we really need to memorize the fifty state capitals? What is the new creative, motivating, rigorous assignment?

4 hours ago

---

### **Incorporate a Sound Instructional Design into a Knowledge Building Center**

Once classroom teachers realize that two heads are better than one, they plan, schedule and assess learning experiences which utilize the rich resources and adult specialists that the Learning Commons provides. The Learning Commons promotes an environment where every child or teen can flourish as a creator, investigator, critical thinker, or communicator. Building on the principles of backwards planning promoted by Wiggins and McTigue in *Understanding by Design*, teachers and learners can apply the Loertscher/Koechlin/Zwaan Think Models to push thinking far beyond the cut/paste/present tradition. These models find applications in both the Open Commons and the Experimental Learning Center depending on whether the learning units are being tried and tested or whether they have been adopted widely. The 18 Think Models that stimulate high-level thinking are:

- **Background to Question Model** – where learners build enough background knowledge on a topic to formulate intelligent and engaging questions for themselves
- **Sensemaking Model** – where the learner takes a group of facts, ideas, or opinions and makes sense through visualization, classification, or synthesis
- **Read, View, and Listen Model** – where learners read, view, and listen widely on a topic and combine what they learn with what others know

- **Advice to Action Model** – where learners consult a wide variety of advice and discern what are the wisest courses of action
- **Compare and Contrast Model** – where people, places, ideas, time periods, issues or solutions to problems are analyzed and compared to gain understanding of varying perspectives
- **Concept Jigsaw Puzzle Model** – where groups build expertise on subtopics and then combine their expertise to build a big picture across what everyone has discovered
- **Problems/Possibilities Jigsaw Puzzle Model** – where learners build expertise in various parts of a problem and then combine their expertise to solve the larger problem.
- **Decision Matrix Model** – where learners assemble facts, ideas, or opinions in a spreadsheet-type of matrix that enables them to do a comparative analysis in order to make an informed rather than a subjective decision
- **Patterns & Trends Matrix Model** – where learners assemble facts, ideas, or opinions in a spreadsheet type of matrix that enables them to look for patterns or trends across the data collected
- **The Timeline Model** – where learners arrange ideas, events, or data in chronological order to enable comparisons, sequences, contrasts, or developments in order to see a larger picture of what is or what was happening.
- **History & Mystery Model** – where learners try to determine what happened, really happened, or find explanations to mysterious happenings
- **Take a Position Model** – where learners take positions based upon careful study rather than upon whim
- **Re-Create Model** – where learners create authentic reproductions whether literary, real, artistically, or creatively as possible
- **Reinvent Model** – where learners try to invent new ways of doing things, processes, environmental systems as close to the real world as possible
- **Learn By Doing** – where learners create apprenticeships, experiments, mockups, or performing tasks in the real or simulated world
- **Teacher-Directed Quest Model** – where learners do research projects under the teacher and learning specialist's direction such as:
  - Online Quest Projects
  - The Report
  - The Research Paper
  - The WebQuest as a Research Model
- **Learner-Directed Quest Model** – where learners take the initiative with adult shadowing of research projects such as:
  - Hero's Journey

- Become an Expert
  - I Search
  - **Mix It Up! Model** – where learners mix and match any of the models above
- 

Resource TIP Loertscher, David V., Carol Koechlin, and Sandi Zwaan.  
*Beyond Bird Units*. Learning Commons Press, 2010. <http://lmcsource.com>

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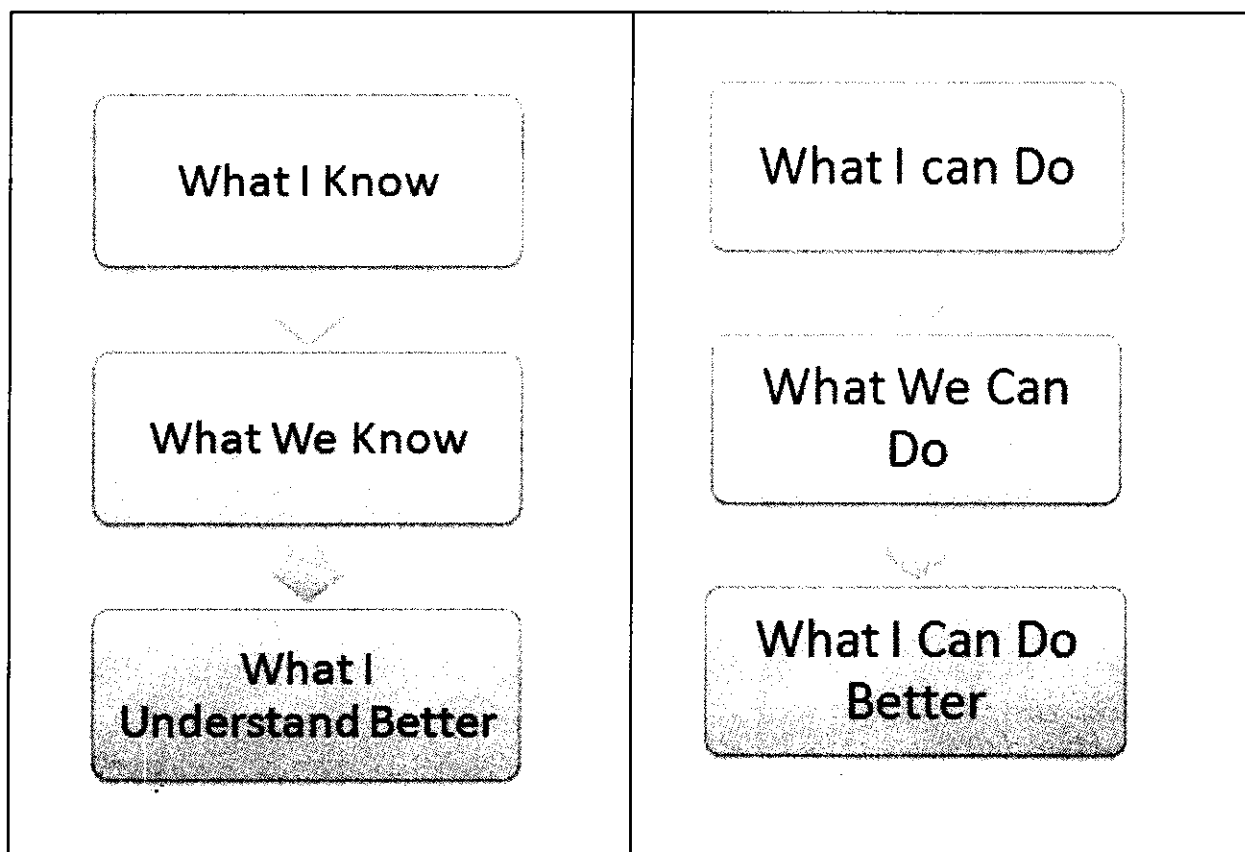
### **When It's Over, It's Just the Beginning of Learning: The Big Think - Building Collective Intelligence**

To reach the full potential of their inquiries learners need to explore the bigger impact of their work. Often the concepts and ideas learned are essentially those targeted in learning standards. As individual or group inquiries are completed and presentations given, learners realize that they have considerable expertise in the curriculum topic they have just explored. They have heard, seen, and experienced the findings of others and are ready to examine the collective knowledge of the class. These products or presentations are not the end of the inquiry project but the beginning of a Big Think. Through collaborative knowledge building, learners take this opportunity to transform their learning into something new.

The Big Think is divided into two parts. The first helps learners reflect on the content knowledge they have built. To do this, they might:

- Conduct an active discussion about what they now know as a group vs. what they researched as individuals
- Attack a more difficult problem or challenge using the expertise of individuals to create an inventive solution
- Challenge the group with a new question requiring combined expertise
- Create a new question that leads them into the next learning experience
- Write about larger ideas and concepts learned by the group
- Collaboratively build charts, diagrams, maps, mind maps, plans, or action items based upon both individual and collaborative expertise
- Interact with an expert in order to compare what they have learned with what the expert knows about a topic and ways they might become experts themselves
- Take action on a problem or issue that surfaces during the learning experience
- Participate in related real world events that exhibit what they know and can do

Thus, as they reflect on their knowledge, they can clearly state or demonstrate:



**Digging Deeper** What should learners try to understand as they reflect back on a learning experience?

Have the students experienced collaborative intelligence (excellence) in the following two videos?

[http://www.youtube.com/watch?v=D7o7BrlbaDs&feature=player\\_embedded](http://www.youtube.com/watch?v=D7o7BrlbaDs&feature=player_embedded)  
and

[http://www.youtube.com/watch?v=6WhWDCw3Mng&feature=player\\_embedded](http://www.youtube.com/watch?v=6WhWDCw3Mng&feature=player_embedded)

Can they learn to tell stories unique to their own experience? See the video at: <http://mediastorm.com/publication/african-air>

and the Periodic Table of Storytelling at:

<http://computersherpa.deviantart.com/art/Periodic-Table-of-Storytelling-203548951>

Can they build visualizations of their work? Check out Kathy Schrock's excellent bibliography about infographics at:

<https://sites.google.com/a/kathyschrock.net/infographics/links>

and an excellent example titled the Periodic Table of Visualization Methods at:

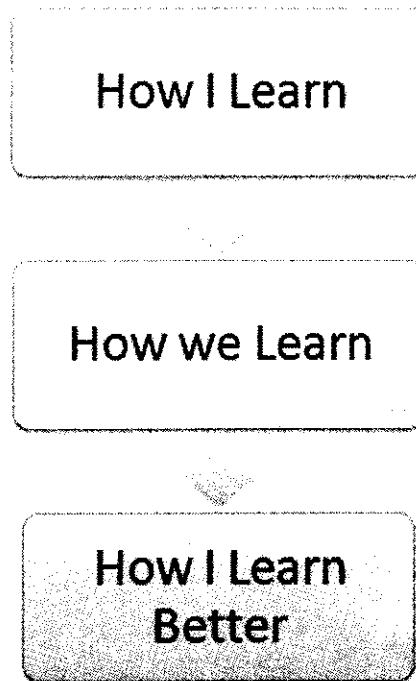
[http://www.visual-literacy.org/periodic\\_table/periodic\\_table.html](http://www.visual-literacy.org/periodic_table/periodic_table.html)

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The second part of the Big Think is to design an activity that will press students to think about the learning process they have just encountered. This activity could include reflection, questioning, and assessing techniques. A Big Think about the learning process should result in transference of skills and knowledge to other or new situations, self and peer evaluation, and goal setting. Together, learners might:

- Develop a visual map of their learning journey and/or the information networks they used during the process.
- Chart individual emotions during the learning process on line graphs and layer the graphs to analyze for group or class patterns. Suggest learning tips for dealing with emotions, work habits, dispositions, and organization skills.
- Compare self-assessments and look for similarities or major differences. Use this data to set individual and class goals.
- Discuss and chart how their skill development applies to future work at school and in their personal lives.
- Explore careers that require inquiry process skills and begin a career database for future reference.
- Create a how-to presentation for another group of learners, e.g., best search strategies, notemaking techniques, presentation tips, etc.
- Develop questions to assess collaborative learning experiences and then develop criteria for better team work.
- Analyze the effectiveness of available time, resources, and equipment, and then prepare a needs assessment report for the Learning Commons
- Reflect as a group: Are we getting better as learners? How can we learn more in less time? What technologies will help us learn better?

Thus, as they reflect on their learning journey, they can clearly state or demonstrate:



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### Challenge

Would it really be possible to bend our social media skills over into our academic skills as illustrated in the following infographic? (Hint: click on the graphic to enlarge it)

<http://w3protokol.com/blog/2011/03/conversations-in-social-media/>

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The third part of the Big Think is designed as a review by the teaching partners of data gathered from the learner, learning unit activities, and learning organization practices. Combined, this evidence will provide teaching partners with powerful data for refining or redesigning future learning experiences. See the Chapter 9 - School Improvement for further details.

**The bottom line, known as the Big Think,** is that the traditional end to a learning activity – passing in a paper, a project, or making a presentation – is now a springboard to keep the thinking and learning flowing.

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Resource TIP In the book: *The Big Think: 9 Metacognitive Strategies That Make the End Just the Beginning of Learning* by David V. Loertscher, Carol Koechlin, and Sandi Zwaan, nine strategies have been developed for collaborative reflection by classroom teachers, students, teacher librarians, teacher technologists, other adult specialists, experts, and/or parents.

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**willrich45** willrich45

I'd love to see a site like this for schools and kids...real problems that need real solutions. <http://open.ideo.com>

20 Jun

Open IDEO <http://www.openideo.com/>

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### Activity

#### Characteristics of Super Learning Experiences

**Take action:** Compare a learning experience you have recently participated in to the characteristics listed below. What strategies did you experience that would exceed any of these characteristics? In what areas could the learning experience have improved? What areas seem difficult or unfamiliar? What experimentation could happen to test the various characteristics for an improved result in your school?

#### Characteristics of Super Learning Experiences

- The learning experience happens in a physical/virtual environment conducive to active investigation under the direction of adult coaches.
- Standards and learning outcomes are selected from state/provincial/national documents that provide minimums the learners are to surpass
- The problem, project, or quest engages the learners; they are engaged because the task is relevant and meaningful.
- Learners encounter a wide range of information from which they must develop deep understanding
- Learners use quality information and media in their learning journey
- Each learner develops personal expertise in the topic at hand and adds that expertise to the pool to create collaborative intelligence



- Adult coaches facilitate learning collaboratively (classroom teacher, teacher librarian, teacher technologist, reading specialists, counsellors, outside experts, other specialists, parents, etc.)
  - The technology used supports the active investigation of the problem/project and actually contributes to the learning and to learning how to learn.
  - Sound instructional designs are used to spur active inquiry, higher-level thinking, habits of mind, and creativity
  - Products include both individual and collaborative creations in written and multimedia formats
  - 21st century skills are taught “just-in-time” to spur content knowledge
  - Sharing both individual and group work takes many forms and a variety of events
  - Differentiation allows for multiple routes toward excellence
  - Almost without exception, every learner meets or exceeds expectations for the learning experience
  - A variety of formative and assessment measures chart progress of individuals and groups of learners.
  - After the unit is complete, the adult coaches and learners participate in a metacognitive Big Think and decide how they can do better during the next learning experience together.
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### **The Learning Leadership Team**

The school administrator, representatives of grade level or department faculty, student representatives, and learning specialists, including the teacher librarian, constitute the Learning Leadership Team. This professional learning community plans the professional development for the school, centers it in the Experimental Learning Center, encourages and promotes experimentation in the Center, and draws attention to exemplary teaching and learning in the Learning Commons and throughout the school. They conduct action research on experimental learning approaches, school or district initiatives, and guide assessment practices and progress toward achievement.

Kuhlthau, Maniotes and Caspari in their book, *Guided Inquiry: Learning in the 21st Century*, describe the guided inquiry team as the group who:

- Understands the constructivist approach.
- Embraces the team approach to teaching.
- Includes administrators.
- Considers inquiry central to curricular learning.

- Commits to the development of information literacy.
- Allocates time for team planning.
- Defines clear roles for each team member.
- Designs assignments that enable and enhance inquiry learning.
- Allocates time for extended learning.
- Commits to guiding students through inquiry.
- Adopts a flexible approach.
- Endorses innovation and creativity.

Kuhlthau, Maniotes and Caspari (2007, 60)

The collegial relationships among team members that extend into the whole school faculty will be an important factor if experimentation and action research are to become part of the whole school culture.

### **Systems and Networks that Support Learning and Experimentation**

The Learning Leadership Team cannot operate in a vacuum. They require the resources to pursue initiatives, professional development, action research, and ongoing relationships with outside experts. Given these conditions the team affects the growth of the whole school as a learning environment that has its vision centered on long-term improvement rather than on short term dictates. The teacher technologist, as part of the Learning Leadership Team, provides the latest systems, hardware, software, and support to facilitate the growth of knowledge building.

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### **BRIGHT Ideas to Build On**

- There are hundreds of tested ideas that engage learners in higher order thinking. Try the list generated by the Generation YES blog authors at: <http://constructingmodernknowledge.com/cm08/?p=1099>
- Adopt Blooms Taxonomy at HOTTs Higher Order Thinking Technology Skills <http://www.freetech4teachers.com/2011/04/hotts-higher-order-thinkingtechnology.html>
- What is the relationship between student engagement and achievement levels? This Canadian research study, *What did you do in school today?*,

explores the connection. <http://www.cea-ace.ca/sites/default/files/cea-2009-wdydist.pdf>

- This study was followed up with a teacher effectiveness framework ,developed by Sharon Friesen, that provides five principles for teachers to apply plus a useful rubric to help teachers improve their design of learning experiences.
  - Principle 1 – Teachers are Designers of Learning
  - Principle 2 – Work Students are Asked to Undertake is Worth Their Time and Attention
  - Principle 3 – Assessment Practices Improve Students Learning and Guide Teaching
  - Principle 4 – Teachers Foster A Variety of Interdependent Relationships
  - Principle 5 – Teachers Improve Their Practice in The Company of Their Peers

<http://www.cea-ace.ca/publication/what-did-you-do-school-today-teaching-effectiveness-framework-and-rubric>

Sharon Friesen (2009)

- As the learners approach a new topic, would they be able to generate better and better questions that could be prompted by working in the following matrix?  
<https://spreadsheets.google.com/spreadsheet/ccc?key=0Ap3yb3UOI0YcdE2M1dtNGdwcUxWaG1IdjgzTWN4NUE#gid=0>
- Or, if they were to encounter a huge number of resources on a current topic, would they know how to sort through the jungle?  
<http://zomobo.com/>
- Sharon Nelson shares her recommendations for assisting students in the building of e-portfolios at:  
<http://thejournal.com/articles/2011/06/29/3-keys-for-a-successful-eportfolio-implementation.aspx>
- Explore Paul Saffo's notion of a third kind of knowledge (what really matters) at: <http://stupidgoogle.wordpress.com/2010/09/14/the-third-kind-of-knowledge/>

- Discover Eli Pariser's warning about Web Personalization:  
<http://www.thefilterbubble.com/ted-talk>
  - Study the Partnership for 21st Century Learning's Common Core Toolkit at:  
[http://www.p21.org/index.php?option=com\\_content&task=view&id=1005&Itemid=236](http://www.p21.org/index.php?option=com_content&task=view&id=1005&Itemid=236)
  - A Brief History of Knowledge Building uncovers knowledge building principles <http://www.cjlt.ca/index.php/cjlt/article/viewArticle/574>
  - Success in deep learning is being reported when learners study a topic throughout their schooling at: <http://www.iereg.net/LiD/>
  - Check out the myths about Project Based Learning at:  
[http://www.fluency21.com/blogpost.cfm?blogID=2092&utm\\_source=Committed+Sardine+Blog+Update&utm\\_campaign=da3eba5afc-RSS\\_EMAIL\\_CAMPAIGN&utm\\_medium=email](http://www.fluency21.com/blogpost.cfm?blogID=2092&utm_source=Committed+Sardine+Blog+Update&utm_campaign=da3eba5afc-RSS_EMAIL_CAMPAIGN&utm_medium=email)
  - Gary Sager's rules learned from Seamour Papert's final work:  
<http://blog.genyes.org/index.php/2011/06/08/8-big-ideas-of-the-constructionist-learning-lab/>
  - Explore how to build a Human Library <http://humanlibrary.org/>
- 

### Scenarios Of Knowledge Building In Action

- **A Major Decision.** Every year, the sixth graders chose a location for a class excursion, but the teacher noticed that the decision was usually based on popularity and whim rather than sound decision making practice. Enlisting the support of the teacher librarian and the district technology coordinator, a research project ensued. Using a Google spreadsheet so that everyone could be working simultaneously, the students collected facts about specific locations on class-designed acceptability criteria: travel time, cost, fun factor, accessibility for all students etc. The teacher librarian taught not just how to find the answer to put into the spreadsheet but why accurate information was so very important. All three teachers became coaches. When the spreadsheet columns and rows

were filled with data, the coaches asked the students what they should do now. The idea of reducing the size of the matrix developed, since any remote location, for example, would eliminate that excursion from consideration. Locations were eliminated until the last remaining were those that met all criteria. Accurate information and the process of decision-making were talked about over and over. Students ended up being confident that they had chosen the right excursion and they understood the basis on which good decisions are made.

- **A Big, Big Think.** When the state governor made a proposal to the regional state governors that they move on multiple fronts to work on the energy crisis, one school's science teacher thought that teenagers just might make a contribution. Mentioning the governor's idea, the science teacher suggested that the entire high school, and perhaps surrounding high schools could take on the governor's challenge. The school principal presented the idea at the first meeting of the professional learning community and there was a round of applause, and a "let's do this" from the entire faculty. Specialists, classroom teachers, community, experts, and excited students began the plans. The professional learning community demanded that the project be based on two major principles: careful research to produce deep understanding of the energy crisis, and a year-long reflection on the skills needed by the students that would enable them to make a sound contribution to a major problem. Thus began their journey. Every week rotating class reflections were scheduled: What do we know now? What skills do we need to advance further? What do you, as a reader, think could have happened? And just why is metacognitive activity done on a regular basis?
- **Action!** In a meeting of the professional learning community, the math teacher was warning that more attention be devoted to math in the school. The P.E. teacher noted that 9 year olds needed more time in physical activities because of a major national study showing a drop in activity at that age, and, the teacher librarian demanded more time for the kids to connect to literature in order to raise reading scores. The technology director suggested to the group that all three competing agendas be combined into a single initiative. There was silence. Then, ideas! They named the project "Run a Chapter". A class committed to run daily while listening to a whole chapter of a book on MP3 players, taking and recording data of heartbeats before and after the run, then calculating individual performance, group performance and school performance as part of an effort to build understanding of applied math. Reflection sessions held once a week did data analysis, had discussions about math operations, principles of health, and of the stories to which they were listening. Students invited the mayor to the school

for a tour of the entire project, and he presented the students with a special fitness award at a final assembly of the year. He also passed out coupons to the city recreation center for summer fun, and the public library linked their summer reading program into the recreation center program.

- **Way Beyond all About.** The primary division in a remote rural school met with the teacher librarian to plan a unit on Cultures of the World. New books were ordered and appropriate video and web materials sourced. During a final planning meeting one of the teachers happened to mention a web site she had just discovered where a primary teacher, Kathy Cassidy, was using a wiki and connecting with other classes around the world to reinforce math concepts. She shared the link <http://primaryweb2.wikispaces.com/> and it sparked all kinds of ideas for learning with other cultures, not just about them.

**Over to You.** Discuss with your group or the authors:

- What experiences have you had with learning units co-taught by classroom teachers and specialists? What were the successes? The challenges?
- Have you had experiences with the Big Think at the end of a learning unit that help learners explore both the collaborative intelligence of what they know, but also the metacognitive journey in getting there?
- If you are having trouble engaging students, consider Brian Harris' seven ways to go from on-task learners to engaged learners at:  
<http://ascd.typepad.com/blog/2011/06/on-task-doesnt-mean-engaged.html>

### References

- Bernard, Sara. 2011. "Move Over, Sal Khan: Sixth-Graders Create Their Own Math Videos!" *Mind/Shift How We Learn*. August 11, 2011.  
<http://mindshift.kqed.org/2011/08/move-over-sal-khan-sixth-graders-create-their-own-math-videos/>
- Friesen, Sharon. 2009. *What did you do in school today? Teaching Effectiveness: A Framework and Rubric*. Canadian Education Association. <http://www.cea-ace.ca/publication/what-did-you-do-school-today-teaching-effectiveness-framework-and-rubric>

- Kuhlthau, Carol C., Leslie K. Maniotes, and Ann K. Caspari. 2007. *Guided Inquiry: Learning in the 21st Century*. Westport, CT: Libraries Unlimited.
- Larner, John. 2011. "Debunking Five Myths About Project-Based Learning" . *Edutopia*. 7/1/2011. <http://www.edutopia.org/blog/debunking-five-pbl-myths-john-larner>
- Popham, W. James. 2008. *Transformative Assessment*. Alexandria, VA: Association for Curriculum Supervision and Development.
- Trilling, Bernie and Charles Fadel. 2009. *21st Century Skills: Learning for Life in our Times*. San Francisco, CA: Jossey-Bass
- Warlick, David. 2010. "Technology-Transformed Learning Environments". *2 cents worth*. March 12, 2010. <http://davidwarlick.com/2cents/?p=2294>

## Resources

### Foundational Ideas

- Popham, W. James. 2008. *Transformative Assessment*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Sawyer, R. Keith, ed. 2005. *The Cambridge Handbook of the Learning Sciences*. New York: Cambridge University Press.

### Foundational Documents

- American Association of School Librarians (AASL). "Standards for the 21st-Century Learner". <http://www.ala.org/ala/aasl/aaslproftools/learningstandards/standards.cfm>
- Anderson, Lorin W., David R. Krathwohl, and Benjamin Samuel Bloom. 2000. *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*. Upper Saddle River, NJ: Longman. A revision of the popular taxonomy.
- International Information and Communication Technologies (ICT) Literacy Panel. 2007. "Digital Transformation: A Framework for ICT Literacy." Princeton, NJ: Educational Testing Services.

[http://www.ets.org/Media/Tests/Information\\_and\\_Communication\\_Technology\\_Literacy/ictreport.pdf](http://www.ets.org/Media/Tests/Information_and_Communication_Technology_Literacy/ictreport.pdf)

- Marzano, Robert J. and John S. Kendall. 2008. *Designing & Assessing Educational Objectives: Applying the New Taxonomy*. Thousand Oaks, CA: Corwin Press. An elaboration and restructuring of Blooms Taxonomy from a different perspective.
- The Partnership for 21st Century Learning. *The Intellectual and Policy Foundations of the 21st Century Skills Framework*.  
[http://www.p21.org/route21/images/stories/epapers/skills\\_foundations\\_final.pdf](http://www.p21.org/route21/images/stories/epapers/skills_foundations_final.pdf)
- Wilson, Timothy D. 2002. *Strangers to Ourselves: Uncovering Adaptive Unconscious*. Cambridge, MA: Harvard University Press. A major psychological tour of how we behave and make decisions.

### **Professional Organizations**

- Association for Supervision and Curriculum Development (ASCD)  
<http://ascd.org>
- American Association of School Librarians  
<http://www.ala.org/ala/aasl/aasindex.cfm>
- International Society for Technology in Education (ISTE) <http://iste.org>
- Canadian Association for School Libraries (CASL)  
<http://www.cla.ca/AM/Template.cfm?Section=CASL2>
- Galileo Professional Network <http://www.galileo.org/inquiry-what.html>
- International Association of Learning Sciences <http://www.isls.org/index.html>

### **Professional Resources**

- Bloss, Susi, and Jane Krauss. 2007. *Reinventing Project-Based Learning: Your Field Guide to Real-World Projects in the Digital Age*. Washington, DC: International Society for Technology in Education



- Callison, Daniel and Leslie Preddy. 2006. *The Blue Book on Information, Age Inquiry, Instruction and Literacy*. Westport, CT: Libraries Unlimited.
- Danielson, Charlotte. 2007. *Enhancing Professional Practice: a Framework for Teachers*, 2nd edition. Alexandria, VA: Association for Supervision and Curriculum Development.
- DuFour, Rebecca, Richard DuFour, and Robert Eaker. 2006. *Professional Learning Communities at Work Plan Book*. Bloomington, IN: Solution Tree Press.
- DuFour, Richard, Rebecca DuFour, and Robert Eaker. 2006. *Learning by Doing: A Handbook for Professional Learning Communities at Work*. Bloomington, IN: Solution Tree Press.
- DuFour, Richard, Rebecca DuFour, and Robert Eaker. 2008. *Revisiting Professional Learning Communities at Work: New Insights for Improving Schools*. Bloomington, IN: Solution Tree Press.
- *A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas*. 2011. Washington, DC: The National Academies Press. PDF version available online at [http://www.nap.edu/catalog.php?record\\_id=13165](http://www.nap.edu/catalog.php?record_id=13165)
- Habits of Mind <http://www.habits-of-mind.net/>
- Jensen, Eric. 2008. *Brain-Based Learning: The New Paradigm of Teaching*. 2nd edition. Thousand Oaks, CA: Corwin Press.
- Koechlin, Carol and Sandi Zwaan. 2003. *Build Your Own Information Literate School*. Salt Lake City, UT: Hi Willow Research and Publishing.
- Koechlin, Carol and Sandi Zwaan. 2001. *Info Tasks for Successful Learning*. Markham, ON: Pembroke Publishers.
- Koechlin, Carol and Sandi Zwaan. 2006. *Q Tasks: How to Empower Students to Ask Questions and Care About Answers*. Markham, ON: Pembroke Publishers.
- Kuhlthau, Carol C., Leslie K. Maniotes, and Ann K. Caspari. 2007. *Guided Inquiry: Learning in the 21st Century*. Westport, CT: Libraries Unlimited.

- Loertscher, David V., Carol Koechlin, and Sandi Zwaan. 2005. *Ban Those Bird Units: Thinking and Understanding in Information-rich and Technology-rich Environments*. Salt Lake City, UT: Hi Willow Research and Publishing.
- Loertscher, David V., Carol Koechlin, and Sandi Zwaan. 2007. *Beyond Bird Units. Thinking and Understanding in Information and Technology Rich Environments*. Salt Lake City, UT: Hi Willow Research & Publishing.
- Loertscher, David V., Carol Koechlin, and Sandi Zwaan. 2011. *Beyond Bird Units: 18 Models for Teaching and Learning in Information-rich and Technology-rich Environments*. Refresh edition. Salt Lake City, UT: Hi Willow Research and Publishing.
- Loertscher, David V., Carol Koechlin, and Sandi Zwaan. 2009. *The Big Think: 9 Metacognitive Strategies That Make the End Just the Beginning of Learning*. Salt Lake City, UT: Hi Willow Research and Publishing.
- Marzano, Robert J. 2007. *The Art and Science of Teaching: A Comprehensive Framework for Effective Teaching*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Marzano, Robert J. and Debra Pickering. 2010. *The Highly Engaged Classroom*. Bloomington, IN: Solution Tree Press.
- McKenzie, Jamie. 2009. *Beyond Cut-and-Paste: Engaging Students in Making Good New Ideas*. Bellingham, WA: FNO Press.
- Montiel-Overall, Patricia and Donald C. Adcock. 2007. *Collaboration*. Chicago, IL: American Library Association.
- Small, Gary and Gigi Vorgan. 2008. *iBrain: Surviving the Technological Alteration of the Modern Mind*. New York: Collins Living (Harper Collins Publishers).
- Tomlinson, Carol Ann, Kay Brimijoin, and Lane Narvaez. 2008. *The Differentiated School: Making Revolutionary Changes in Teaching and Learning*. Alexandria, VA: Association for Supervision and Curriculum Development.

- Thompson, Clive. 2011. "How Khan Academy Is Changing the Rules of Education". *Wired*. August 2011.  
[http://www.wired.com/magazine/2011/07/ff\\_khan/](http://www.wired.com/magazine/2011/07/ff_khan/)
- Trilling, Bernie and Charles Fadel. 2009. *21st Century Skills: Learning for Life in Our Times*. San Francisco CA: Jossey-Bass.
- Wiggins, Grant and Jay McTighe. 2005. *Understanding by Design*. Expanded 2nd edition. Upper Saddle River, NJ: Prentice Hall.
- Williams, Anthony D. and Don Tapscott. 2010. *Wikinomics: How Mass Collaboration Changes Everything*. New York: Penguin Group.
- Williams, Robin T. and David V. Loertscher. 2008. *In Command! Kids and Teens Build and Manage Their Own Information Spaces, And... Learn to Manage Themselves in Those Spaces*. Salt Lake City, UT: Learning Commons Press.
- Zmuda, Allison and Violet H. Harada. 2008. *Librarians as Learning Specialists: Meeting the Learning Imperative for the 21st Century*. Westport, CT: Libraries Unlimited.