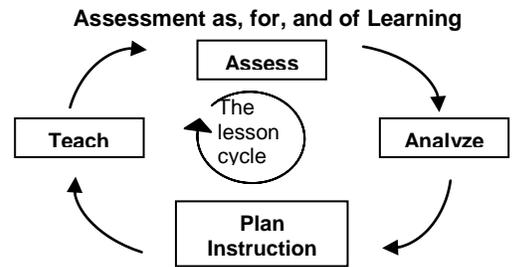
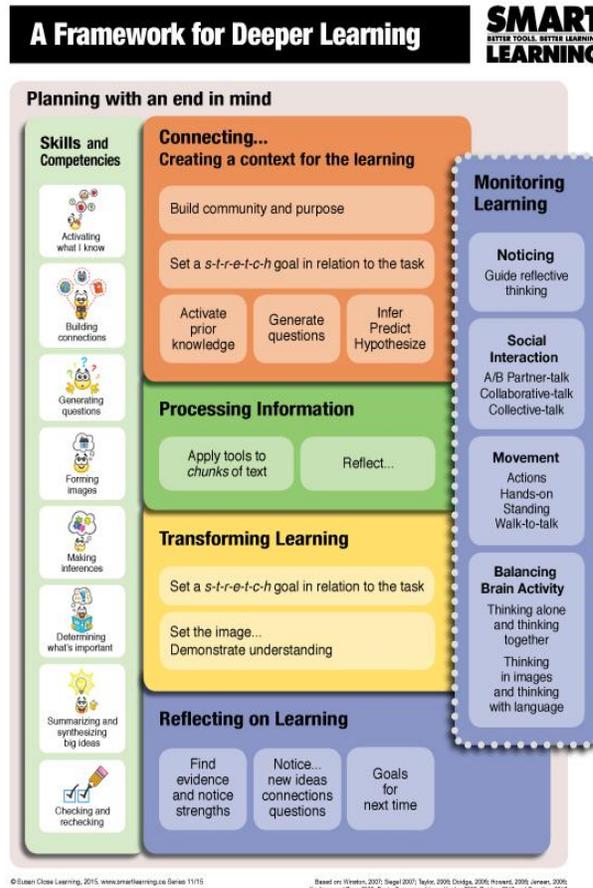


# A Framework for deeper learning: inspired by action research and inquiries over time



The framework as it stands today was developed through over twenty years of action research and inquiries into learning. The studies were driven by questions teachers were asking as learners' needs and backgrounds grew more diverse. The focus today, as it has been all along is to have all learning develop deeper understanding and higher levels of response -- in all learners regardless of their presenting skill-sets or backgrounds. You might think this is a tall order to achieve.

Since 1997 we have been working to answer a challenge posed by Ellen Langer (1997) in her book, *The Power of Mindful Learning: How does a learning situation release the full mental resources of all learners and help them to learn and retain complex skills?* At the time the multi-district *Learning for Success* project was in full swing, and we were presenting keynote addresses, workshops, and classroom-based demonstrations of practices that dramatically improved writing achievement in many parts of the world (Australia, the Philippines, England, Scotland, the USA, and Canada). Ellen Langer's question stopped us in our tracks. We did not really have an answer. That led to new inquiry questions: Is what we are doing giving us what we want? How do we know?

Over the years we added teaching with complex tasks in mind which included integrating comprehension skills and guiding learners to read and respond with a purpose or task in mind, developing criteria with

learners and inviting them to use the criteria to set personal *s-t-r-e-t-c-h* goals, structured-talk to build community and an inclusive context for developing and distributing thinking, intentionally developing deep reading processes (see *Imagery and Perspective-taking as Power Tools for Deeper Learning* – in resources), applying skill-specific cognitive processes called SmartLearning tools to the analysis of text – with text having a much wider and deeper meaning: oral interactions, images, print, media, experiences, presentations, experiments, field trips... any information learners use to advance understanding and achievement. Standing and moving to integrate thinking, intentionally balancing brain activity – thinking in images and words, and thinking alone and together, task analysis, re-viewing criteria and goals, setting the image to guide learners into demonstrating understanding, reflecting to find evidence of meeting goals, notice strengths, discussing new ideas, connections and questions, and using information gleaned from the learning to set up further goals.

Now, twenty-three years later, in 2020 the framework, practices and processes serve as a thorough answer to Ellen Langer's question. In the resources section on the website you will find documents that cite the findings that led to the additional practices. *Insights into the Brain and Learning* will provide you with a wealth of quotes you can use with colleagues, students and parents. We've noticed learners of all ages like to hear the thinking behind the work they are doing. Look at the initial research findings behind the framework when we first developed it in the late '90s. We've stood on the shoulders of research for a long time.

## **The thinking behind the Framework for Deeper Learning**

### **Building community and a sense of belonging with talk - perceptive, challenging talk**

We believe that inclusive *SmartLearning* routines and practices create safe conditions for all learners to thrive. Structured partner-talk plays a key role in all *SmartLearning* interactions. We teach the talk processes systematically and explicitly, through teacher modeling and 'think-alouds'. Learners work in side-to-side A/B partners, in walk-to-talk partners, and in teams of two or three to discuss thinking. Sometimes they work collaboratively to generate and report-out thinking and understanding.

*Often we have the students engage in A/B structured partner talk. When we systematically invite students to notice, talk about, and reflect on similarities and differences we can double the learning. (Marzano, 2001)*

*Cognitive development is supported when students are encouraged to verbalize their ideas and questions. Discussions allow students to think critically and to consider multiple perspectives (Braunger & Lewis, 1997).*

*Students' mental abilities originate from social interaction. Learning first occurs within the social context, and only later does the learner internalize it (Herb, 1997).*

*Conversation builds ideas, facilitates comprehension of text, encourages cognitive development, and fosters growth in expressive language abilities. Partner and small group talk is a way to give students control over the pace and focus of their learning (Hartman, 1996).*

*The most effective way to increase our ability to pay attention is to look for novelty or distinctions ... Noticing distinctions focuses engagement. Student's attention is on a clearly defined goal. They know what must be done. The feedback from the dialogue stretches their skill with the task (Langer, 1997; C. Sikzentmihalyi, 1997).*

## **Connecting: activating and building background knowledge & vocabulary**

### **1. Setting the task... building criteria and setting personal stretch goals**

- Goals are set in relation to a particular task and criteria are often co-developed with the class. In partners, students analyze work samples, noticing what works or what is powerful. A class set of criteria is developed; students set personal *s-t-r-e-t-c-h* goals in relation to criteria set for the task.

### **2. Activating prior knowledge & building background knowledge**

- Students tap into their own knowledge bases by connecting to what they know about a topic. They draw upon their life experiences, experiences with other texts, and events in the world. Generating and discussing their background knowledge builds a foundation for new learning.

*Students come to the classroom with preconceptions about how the world works. If their initial understanding is not engaged, they may fail to grasp the new concepts and information that are taught, or they may learn them for purposes of a test but revert to their preconceptions outside the classroom. Teachers must draw out and work with the preexisting understandings that their students bring with them (Donovan, Bransford & Pellegrino, 1999).*

### **3. Questioning**

- Asking, probing or wondering questions about the concept, content, or the author's purpose engages the reader. A student who can design a thoughtful question is well on the way to providing an insightful answer. Creating questions before and during listening, viewing or reading leads to deeper understanding.

*Questioning before reading leads to higher levels of achievement (Marzano, 2001).*

*Cognitive development is supported when students are encouraged to verbalize their questions (Braunger & Lewis, 1997).*

*Reason can answer questions but imagination has to ask them (Albert Einstein, as cited in Cornett, 1998).*

*The significance of this strategy lies in its ability to spark imagination and engage readers in a piece of text ... questioning engages more readers as they pursue the unknowns of a story (Burton, et al, 2000).*

### **4. Predicting or Hypothesizing**

- Prediction or hypothesis generation sets the stage for the processing of new ideas and information. As the students read, listen or view they makes connections. If the prediction is the same as the story, the thinking is reinforced. If the prediction/hypothesis is different, learners adjust their thinking. Both kinds of connections build brainpower. The work becomes the 'Velcro' for new learning.
- A/B structured partner-talk, and whole-class discussion stimulates thinking, develops new understandings, and establishes a focus for new learning.

*Prediction or hypothesis generation is a critical reading skill and has a profound effect on inference and the development of deep understanding (Marzano, 2001).*

## **Processing: viewing, listening, reading and thinking with text... with a task and goals in mind**

### **5. Text is chunked into meaningful sections, and processed one chunk at-a-time**

- By text we mean: oral interactions, images, print, media, experiences, presentations, experiments, field trips – any information used to advance learning

*Chunking is one of seven major cognitive strategies. Chunking procedures invite students to gather, retrieve, categorize, and organize information; identify what is important, articulate why it is important, and make connections before they head into the processing of new information. Frames like **Idea-sketch•tagline, I'm Picturing & Panning for Gold, What's Important & Why? Thinking like...** (A character, observer, expert or specialist... a Photographer...) invite learners to spatially organize and process information. The organizers become tools that prepare students to interact with content and personalize their understandings.(McClaren & Close, 2001; Farmer & Wolff, 1991).*

The learning develops imagery and perspective-taking, important deep reading processes (Wolf, 2018)

*To develop competence in an area of inquiry, students must:*

- *Have a deep foundation of factual information*
- *Understand facts and ideas in the context of a conceptual framework.*
- *Organize knowledge in ways that facilitate retrieval and application (Donovan, Bransford & Pellegrino, 2000).*

*The explicit engagement of students in the creation and discussion of graphic representations stimulates and increases activities in the brain (Gerlic & Jausovec, 1999; Given, 2003; Bell, 2009).*

- Learners work individually, then in partners (or triads) to clarify and refine understandings. Learning is often reported-out to the whole-group to distribute and extend thinking. We use reporting frames to support collaborative and individual expression, E.g. \_\_\_ and I think \_\_\_ because \_\_\_).

*Hearing your name stimulates belonging in a constructive way (Covey, 1994).*

*Chunking always includes rehearsal, an important cognitive strategy. Students are offered opportunities to idea-sketch, write, listen and talk through their understandings. Thinking originates in collaborative dialogues, which are internalized as 'inner speech', enabling students to do later in 'verbal thought', what they could at first only do by talking with supportive adults or more knowledgeable peers. (Miller, 2001; West, Farmer & Wolff, 1991).*

*Using frames for speaking exercises the motoric function in the brain like memory-work did in bygone school days (Doidge, 2009)).*

- Reflection on goals and learning after working with information consolidates learning and is a critical part of processing experiences.

## Transforming: generating demonstrations and personalizing learning

### 6. Responding: transforming understandings

- After reading (viewing, listening...) the task is re-viewed and analyzed. Learners re-view their goals; the teacher *sets the image* by using a few statements to re-view the learning:

#### **An example of teacher-talk:**

*See yourself as an expert on (... the main character, an observer on the scene... a specialist is the content...)... notice what seems to be important... hear the thinking and talking about what happened... notice the colours... movement or actions... important messages coming from the work we just did... when I count to three begin (sketching/writing) to show what was important; be sure to justify your thinking with evidence from the text... 1•2•3.*

Learners are invited to think as insiders, to show what they know. They often write from a perspective: in role as a character, expert, specialist, observer... to send an image of what is important, to explain, or show in detail, their understandings (see: *Imagery and Perspective-taking as Power Tools for Deeper Learning* in the resource section on the website).

*Writing leads to improved reading achievement, reading leads to better writing performance and combined instruction leads to a higher level of thinking than when either process is taught alone (Braunger & Lewis, 1997)*

*When students listen to drafts and discuss why the chosen passages are powerful, this form of editing for thought has been shown to be the most effective way of improving writing (Hillocks, 1996).*

*Writing should occur throughout the curriculum and should be the centre piece of language of development because it is through clear writing that thinking emerges (ASCD, 1997).*

## Reflecting on learning: finding evidence, noticing strengths, sharing new ideas

### 7. Finding evidence of meeting goals

- Students reflect on their own learning to find evidence of meeting goals and to notice strengths emerging in their learning
- Teachers often share with the students what they noticed about the learning

*Students who monitor their learning are more effective learners than those who do not ... People who can watch themselves in the process of learning and analyze their responses, are better learners than those who are less aware of how they learn. They are able to direct and control their use of strategies (Cross, 1996; Schwartz & Perkins, 1998)*

*Highly developed metacognitive skill, or the ability to bring automated skills into consciousness is characteristic of high intelligence. By developing self-awareness, one is effectively developing one's intelligence (Brown, 1987; Abbott & Ryan, 2001).*

### 8. Discussing new Ideas, new connections and new questions

- Students reflect on the content identifying new learning. They reveal connections to other texts, to experiences in their own lives, and to events in the world. They generate new questions to further their learning.

*When we systematically invite learners to notice, talk about, and reflect on similarities and differences we can double the learning (Marzano, 2001).*

*Learning-centred classrooms create an engaging culture and an identity as learners for all their participants. Enhanced thinking, challenge and agency can lead to pupils making double the progress in measured performance (Watkins, 2016).*

**9. Students reflect on the content identifying new learning: ideas, connections, questions.**

**10. In light of new understandings they discuss possible next steps for learning.**

~

**Let's talk about assessment using three lenses: assessment for, as, and of learning**

**Assessment for learning:** is seeing where learners are in the corridor of learning; the learning informs daily planning and teaching, and formative achievement conversations.

**Assessment as learning:** develops learner metacognition. Assessment as learning has the power to meet students where they are, build learner beliefs in their own capabilities, kindle motivation, and advance achievement in remarkable ways. We have been strongly influenced by the work of Warren Bennis (1997). Two quotes hold so much meaning for us:

*None of us is as smart as all of us together... collective genius does not just happen; methods matter*

By involving learners in the development of criteria, and using the criteria to set personal *s-t-r-e-t-c-h* goals, learners take ownership for learning. When they monitor and reflect to find evidence of meeting goals, motivation increases. The visible evidence of achievement provides a '*seeing is believing*' context for advancing achievement.

After a lesson, the teacher analyzes student samples to find strong or powerful evidence of learning. To connect learners to the next lesson, learners are invited to analyze a few sample responses to determine why the examples (2-4) were chosen. The exemplars might include powerful idea sketches, excerpts from writing – an example drawn from a collective learning experience. Sketches or graphic representations might be scanned and projected. Learners analyze and talk to notice what works, what is powerful. Learners may listen to a sample of writing to hear what works or what is powerful. From the analysis a T-chart is formed: quality on the left, an excerpt from the sample on the right, with the excerpt's owner's initials tucked in beside.

Below is a reflection from a Grade 6/7 teacher showing how he worked with his class to determine criteria for powerful ideas:

Prior to today's lesson I thought I was having difficulties truly connecting the criteria to the student's work, and driving home what it meant to develop powerful ideas. I knew that having the students build and own the criteria was key and made it more effective, and using exemplars would make it more powerful, but students continuously went back to using only surface level qualities that powerful ideas had to contain.

Susan and I discussed this and prior to this lesson, I removed all pre-existing criteria for creating powerful ideas. Our attempts had been based on using ideas from the walls of the class room. A clean slate, it seems, allowed the students to look more deeply at the exemplars presented.

In the prior day's lesson, students had completed **Partner Picture-talk** and done **Gap Analysis** for the 2<sup>nd</sup> chunk of *Feathers and Fools*. They **idea-sketched** and had their A/B partners attempt to guess their **taglines**. After sending

their images into each other's thinking. From this day's lesson, I chose some examples from their work that at first glance may not have seemed powerful, and may have been dismissed if I had not guided the students to analyze the work more carefully.

Powerful Ideas	
Qualities	Evidence
- Powerful Words	"Fear my spray cheese of doom!" L.S.
- "Powerful Words	"Swans flying high..." A.K.
- Emotions - Big Idea (Bullying)	"Naanaanaana!" "Hey!" J.M.
- Focuses on a message - Powerful Words	- Peacock died because they tried to be different H.R.
- Backup what you say → Justify	

The first Idea-sketch and tagline I chose made the students laugh and came across as silly, when I asked what was powerful. It took awhile for them to accept that there was a powerful idea present. The focus immediately went to the words "Doom," "Fear," and then added an exclamation point. A sense of foreboding was mentioned by some, and the choice of those words together took an innocuous line and made it powerful, and filled with imagery.

The second tagline again picked up on powerful words. "Swans flying high muttering while peacocks wander" gave the students an opportunity to identify powerful words. With some prompting, they were able to identify multiple meanings in the words "flying high" created to show what was important in the image.

The third sample, did not contain a tagline; it contained many thought bubbles and a definite scene. The incredible part was that its author, a usually reluctant student, confidently spoke up when he recognized the example as his. He quickly guided the classes' discussion to the emotions that the characters would be feeling, and to the central theme he was picturing which was bullying. The class determined that powerful ideas had to connect to those BIG IDEAS.

The last sample I chose struck me with a lot of emotion, and although the images took a very literal approach to the tagline, the tagline's figurative undertones spoke volumes about the message that this story conveys, and lessons that are built within the text. This really made the class realize that focusing on a message, when analyzing images and words to develop our predictions is essential to the process – the whole point for using the processes, Partner **Picture-talk** and **Gap Analysis to build background knowledge and vocabulary in the connect phase of the learning cycle**. Slowing down to go deeply is key to developing the deeper understandings in text.

The writing in role that followed, after setting new *S-T-R-E-T-C-H* goals this day, was quite deep and struck on many levels with deep intuition and understanding for the central ideas of the story. Incredulously at this point the students have only read the first chunk of the text. I am left feeling very intrigued. I actually cannot wait to see what they will add once they have actually read the second chunk of the story.

~ Ian Drown, Nanaimo, BC

The reflections below, from intermediate learners in two different school districts, show the power of including learners in the assessment conversation. One brought an ache to my heart. I loved the sense of freedom that comes from having a voice and taking ownership for learning. To me knowing that one learner has experienced something profound puts icing on a career of learning.

d) At first when I started the year I really had troubles getting words onto a page. I learned how to organize my thoughts so I can flow through my writing pieces

e) I never knew how my brain worked before but after the amount of time spent on metacognition, I learned so much better.

B) Smart Learning has helped me become a more powerful thinker by sharing ideas, thoughts, <sup>or</sup> opinions with others and stretching my thinking to the limits as well as ~~challenging~~ <sup>challenging</sup> the limits to question or argue. Also, when others give you more to think about, you then start to go even deeper in your thoughts which then leads your mind into different patterns of thoughts.

Other) Justify  
since the beginning of the year I didn't know the word justify. But being with all these amazing people in our class, I learn... I learn from every single one of them. I justify once because other people do and know I do it, because it's a habit. I do it with out thinking. It just happens now.

e) Other? I wanted to say that this was so new for me. I didn't know what to do at first so it was really frustrating. But my teachers helped me and my classmates helped me, so eventually I got the hang of it. I'm glad I used SMART learning because it helps me everywhere I go.

*The most important stage in SmartLearning is the metacognition part. It is the most important ingredient in the recipe. You cannot improve or get better at a skill if you don't think about what is hard. Once you know your weakness, you can set goals to improve, and then your learning grows higher and higher and higher.*

*Whenever I used to think or write I would feel like I was trapped in a cage, locked in chains. SmartLearning has allowed me to break free because I can fully express myself. I am free to think and write whatever I want and my chains are gone.*

**Assessment of learning:** seeing where learners are independently at strategic times during the year provides information for unit and long-term planning, and achievement conversations. We use the **A•S•K Assessment of Reading and Responding - Kto9** (Close, Nottingham, Warkentin & Pain, 2017) three times a year (Baseline, Mid-year and Year-end) to assess reading comprehension and response. Through the assessment we can see where learners are in the corridor of learning, in relation to standards set for learners of a similar age. The assessment continua were derived from the BC Performance Standards for Reading, 1998 and the Early Literacy Continua (2009). We recommend using Words their Way (Pearson) to assess orthographic knowledge over time, and the Kelowna *Early Literacy Assessment* to assess Phonemic

Awareness to track important foundational skills for reading. Other assessment tools are used based on observations of learner needs.

## **An invitation to reflect ...**

We invite you to reflect using five lenses and two questions.

### **The lenses:**

- The intent of *SmartLearning***
- A brushstroke of beliefs about learning**
- A question posed by Ellen Langer (1997) in *The Power of Mindful Learning***
- Eight Principles of *SmartLearning***
- The Principles of Deliberate Practice.**

### **The questions:**

- Is what we are doing, giving us what we want?**
- How do we know?**

## **The intent of *SmartLearning***

We designed the ***SmartLearning*** approach to be an inclusive, concept-based, learning-centred, and interactive approach to literacy designed to develop learner agency alongside skills and competencies for deeper learning – in learners of all ages. A tall order, we know. The framework and practices were developed through over thirty years of action research involving thousands of students and hundreds of educators in many BC, NT, and Alberta jurisdictions.

## **A brushstroke of beliefs about learning:**

- The inclusive *SmartLearning* routines and practices create a social and emotional context for belonging, and conditions for all learners to thrive.**
- Assessment as learning has the power to kindle motivation, build learner beliefs in their own capabilities, and advance achievement in remarkable ways.**
- A learning-centred focus builds agency and identity as learners**
- Deep learning including a focus on deep reading processes and perspective-taking empowers all learners.**
- Interactive teaching with cognitive processes develops deeper learning.**
- Partner-talk builds a sense of community, lays a social and emotional foundation for belonging, and develops and distributes thinking which enriches learning for all.**

## **A question posed by Ellen Langer:**

We see *SmartLearning* as an answer to Ellen Langer's question. Finding the answer took us over twenty years and we are grateful to her for the powerful probe.

*How can a learning situation release the full mental resources of all learners and help them learn and retain complex skills?*

## Eight principles guide the work of SmartLearning:

- **T•ime: *Festina Lente*:** in Latin means, '*make haste slowly...*' We have taken to heart the Urban dictionary meaning: To see urgent things through a thorough manner. We intentionally slow down and take time to develop learner agency, and to scaffold for concept & competency development... skills needed for deeper learning. The growing competence builds confidence. The deep learning-centred focus gives learners time to develop self-efficacy and identity as learners.
- **T•alk:** structured A/B partner-talk is used to build an inclusive community where everyone is valued, respected and responsible for learning. With a prompt in mind, individuals develop their own ideas, talk through and clarify their own thinking with partners, sometimes collaborating to generate partner responses, hear ideas reported-out. The distributed thinking has the power to revise, refine and extends everyone's thinking. The 'No brain-bruising' contexts build the emotional and psychological safety needed for belonging.
- **T•hinking and reflecting about the brain and learning:** beliefs about capabilities grow as learners learn more about their own learning, hear others talk about learning, and through visible evidence of learning. This work builds metacognitive awareness and skill, a key to advancing achievement.
- **T•asks: complex, open-ended invitations into matters of importance:** 'ends in mind' give learners an idea of where the learning is headed. The open-ended nature of tasks creates inclusive invitations that enable all learners to engage. Concepts, skills and competencies are integrated into complex tasks that set destinations for units of work and lessons within the unit - tasks to accomplish. Lesson tasks scaffold learning over time to achieve the 'ends-in-mind'.
- **T•exts:** oral interactions, images, print, media, experiences, experiments, presentations, field trips... using information of all kinds to build understanding. Texts must be engaging, rich, and hold deep meaning.
- **T•eaching:** planning is guided by a framework that reflects the principles of learning & teaching. The learning is learning-centred, concept-based, interactive, inquiry-based, and designed to develop confidence, skills and competencies for deep conceptual thinking and understanding – right from the start in early Primary.
- **T•ools:** a kit of cognitive processes called *SmartLearning tools* develop and advance concepts, skills & competencies. The tools are processes; the plans we create to use them are our strategies for advancing achievement.

## Principles of Deliberate Practice

- **Activities designed with the student's current abilities in mind...** with the intention of stretching skills beyond the current skill level
- **Takes place outside one's comfort zone** and requires a student to constantly try things that are just beyond his or her current abilities
- **Purposeful practice** that knows where it is going & how to get there, demands focus & effort
- **Involves well-defined, specific goals** & often involves improving some aspect of the target performance
- **Requires full attention and conscious actions...** with time and experience students must learn to monitor themselves & adjust their learning
- **Builds on previously acquired skills...** working specifically to improve them (Ericsson, 2016).

## References

- Alexander, P., Kulikowich, J., and R. Schulze. How subject-matter knowledge affects recall and interest, *American Educational Research Journal*, 31(2), 313-337, 1994.
- Allington, R. What I've Learned About Effective Reading Instruction. *Educational Leadership* 84 (10) 740-79747, 2002.
- Anderson, R. and D. Pearson. A schema-theoretic view of basic process in reading comprehension. In Pearson, D. (ed.) *Handbook of Reading Research*. New York: Longman, 1984.
- Bear, D., Invernizzi, M., Templeton, S., and F. Johnston. *Words Their Way*. Toronto, Ontario: Pearson Education,

2003, 2001.

- Bell, N. Gestalt Imagery: A Critical Factor in Language Comprehension. *Annals of Dyslexia*. Baltimore, Maryland: Orton Dyslexia Society, 1991.
- Bell, N. *Verbalizing and Visualizing*. San Luis Obispo, California: Gander Publishing, 1991.
- Black, P. and D. Wiliam. *Inside the black box: raising standards through classroom assessment*. London: King's College, 1998.
- Bransford, J., Brown, A., and R. Cocking. (Eds.). *How people learn: Brain, mind, experience, and school*. Washington: National Academy Press, 1999.
- Braunger, J. and J.Lewis. *Building a knowledge base in reading*. Portland: Northwest Regional Educational Laboratory's Curriculum and Instructional Services. <http://www.nwrel.org/nwreport/nov97/article1.html,1997>.
- Brownlie, F. and S. Close. *Beyond Chalk and Talk*. Markham: Pembroke, 1992.
- Brownlie, F., S. Close, and L. Wingren. *Tomorrow's Classroom Today*. Markham: Pembroke, 1990.
- Brownlie, F., Close, S., and L.Wingren. *Reaching for Higher Thought*. Edmonton, Alberta: Arnold Publishing, 1988.
- Calkins, L. *Raising Lifelong Learners*. Reading: Addison-Wesley, 1997.
- Close, S., M. McClaren, M., and C. Stickley. *Preliminary findings from year two of the Learning for Success Research Study* presented at the Late Literacy Focus Day, Vancouver School District (January, 2002).
- Close, S. *Pathways to Powerful Performance: Effective ways of supporting educators to integrate the systematic teaching of cognitive and metacognitive strategies into their practice of teaching writing*. Unpublished Masters Thesis. Victoria, B.C. Royal Roads University, 2001.
- Close, S., McClaren, M. and C. Stickley. Unpublished findings from the third year of the Learning for Success Research Study: *How does the systematic and explicit teaching of cognitive and metacognitive strategies effect student learning and student thinking about learning?* New Westminster School District, 2002.
- Covey, S, R. Merrill, and R. Merrill. *First Things First*. New York: Simon and Schuster, 1994.
- Csikszentmihalyi, M. *Finding flow*. New York: Basic Books, 1997.
- Damasio, A. *The Scientific American Book of the Brain*. New York: Lyons Press, 1999.
- Desforges, C. Keynote presentation given at the UKRA conference, Canterbury (July, 2001).
- Diamond, M. *Unpublished paper presented at the Getting it Right about Children's Development Conference*, Harvard University, Massachusetts (February, 1999).
- Doidge, N.(2009). Reflections on *The Brain that Changes Itself*. Workshop. Royal Vancouver Yacht Club: Vancouver, BC, 2009.
- onovan, M., Bransford, J., and J. Pellegrino. *How people learn: bridging research and practice*. Washington: National Academy Press. <http://books.nap.edu/html/howpeople2/ch2.html>, 1999.
- Elmore, R. A Plea for Strong Practice. *Educational Leadership* 61 (3) 6-10, 2003.
- Elmore, R. Hard Questions About Practice. *Educational Leadership* 83 (9) 22-25, 2002.
- Ericsson, A. & Poole, R. (2016). *Peak: How all of us can achieve extraordinary things*. London: Vintage.
- Fullan, M. Keynote presentation given at the British Columbia Superintendents' Conference, Victoria (November, 2001).
- Farstrup, A. and S. Samuels.(Eds.) What Research has to say about Reading Instruction. Newark, Delaware, 2002.
- Gerlic, I. and Jausovec N. Multimedia: Differences in cognitive processes observed with EEG, *Educational Technology Research and Development*, 83(9), 5-14, 1999.
- Goleman, D. *Emotional Intelligence*. New York: Bantam, 1995.
- Goodall, J. Keynote presentation given at the International Schools Conference, Shanghai (November, 1999).
- Gregory, K., Cameron, K. and A. Davies. *Knowing What Counts: Setting and Using Criteria*. Merville, BC: Connections Publishing, 1997.
- Hartman, S., Thinking and learning in classroom discourse, *Volta Review*, 98(3), 93-107, 1996.
- Hattie, J., Biggs, J., and Purdie, N. Effects of learning skills interventions on student learning: A meta-analysis, *Review of Educational Research*, 66(2), 99-136, 1996.
- Herb S. Building blocks for literacy: What current research shows', *School Library Journal*, 43(7), 23, 1997.
- Howard, P. *The Owner's Manual for the Brain*. Austin: Leomian Press, 2014, 2000, 1994.
- Jeroski, S. Lecture given at Gathering Evidence of Reading Performance study session, New Westminster (October, 2001).
- Jeroski, S., Brownlie, F., and L. Kaser. *Reading and Responding*. Toronto: Nelson, 1991.
- Langer, E. *The power of mindful learning*. Don Mills, Ontario: Addison-Wesley, 1997.

- Lavoie, D. Effects of emphasizing the hypothetico-predictive reasoning within the science learning cycle on high school students' process skills and conceptual understanding in biology, *Journal of Research in Science Teaching* 36 (10) 1127-1147, 1999.
- LeDoux, J. *The emotional brain: The mysterious underpinnings of emotional life*. New York: Simon and Schuster, 1996.
- Levine, M. *A Mind at a Time*. New York: Simon and Schuster, 2002.
- Lipsey, M. and Wilson, D. 'The efficacy of psychological, educational, and behavioral treatment', *American Psychologist* 48 (12) 1181-1209, 1993.
- Macklin, M. Preschoolers' learning of brand names for visual cues. *Journal of Consumer Research*, 23(3), 251-261, 1997.
- McCabe, A., and C. Peterson. *Developing narrative structure*. Hillsdale: Lawrence Earlbaum Associates, 1991.
- McClaren, M. (2000). Unpublished paper given at the British Columbia Superintendents' Conference, Victoria (November, 2000).
- McClaren, M. Unpublished paper given at the Learning for Success Research Conference, New Westminster (November, 1999).
- McClaren, M. and D. MacIntosh, D. *Leadership and Learning in an Information Technology Rich Environment*. Victoria: Royal Roads University, 1999.
- McClaren, M. *A Curricular Perspective on the Principle of Understanding Curriculum: Towards Developing a Common Understanding*. Victoria, BC: Ministry of Education, 1989.
- Marzano, R., Pickering, D. and Pollock, J. *Classroom Instruction that Works: Research-Based Strategies for Increasing Student Achievement*. Alexandria, Virginia: Association for Supervision and Curriculum Development, 2001.
- Marzano, R. *Assessing Student Outcomes*. Alexandria: ASCD, 1994.
- Marzano, R. and D. Arrendondo. *Tactics for Thinking*. Aurora, CO: Mid-Continent Regional Educational Laboratory, 1986.
- Miller, S. Vygotsky and Education: The sociocultural genesis of dialogic thinking in classroom contexts for open forum literature discussions. <http://psych.hanover.edu/vygotsky/miller.html>, 2001.
- Nagy, W. *Teaching vocabulary to improve reading comprehension*. Urbana: National Council of Teachers of English, 1988.
- Newton, D. Pictorial support for discourse comprehension. *British Journal of Educational Psychology*, 64(2), 221-229, 1995.
- Organization for Economic Co-Operation and Development/ Program for International Student Assessment. *Measuring Student Knowledge and Skills: A New Framework for Assessment*. Paris, France: OECD/PISA, 1999.
- Pavio, A. *Mental representations: A dual coding approach*. New York: Oxford University Press, 1986.
- Pearson, D., Roehler, J., Dole, J., and Duffy, G. Developing Expertise in Reading Comprehension, in Samuels, J. and Farstrup, A. (eds.) *What Research Has to Say About Reading Instruction*. Newark: International Reading Association, 1992.
- Perkins, D. *Smart Schools. From training memories to educating minds*. New York: The Free Press (Macmillan), 1992.
- Petrosky, P. in Cullinan, B. *Pen in Hand: Children Become Writers*. Newark, Delaware: International Reading Association, 1993.
- Pinker, S. *How the Mind Works*. New York: W.W. Norton, 1997.
- Pressley, M. *Reading Instruction that Works*. London: Guilford, 2001, 1998.
- Pressley, M., Symons, S., McDaniel, M., Snyder, B., and J. Turnure. Elaborative interrogation facilitates acquisition of confusing facts. *Journal of Educational Psychology*, 80, 268-278, 1988.
- Pressley, M. and Woloshyn, V. *Cognitive strategy instruction that really improves children's academic performance*. Cambridge: Brookline Books, 1995.
- Pressley, M., Wood, E., Woloshyn, V., Martin, V., King, A., and D. Menke. Encouraging mindful use of prior knowledge: Attempting to construct explanatory answers facilitates learning. *Educational Psychologist*, 27(1), 91-109, 1992.
- Pressley, M. Personal communication, February, 2006.
- Ratey, J. *A User's Guide to the Brain*. New York: Random House, 2001.
- Robinson, K. Keynote presentation at the UKRA conference, Oxford (July, 2000).
- Rovee-Collier, C. Time windows in cognitive development. *Developmental Psychology*, 31(2), 147-169, 1995.

- Scardamalia and C. Bereiter, C. Fostering the development of self-regulation in children's knowledge processing in Chipman, S., Segal, J., and R. Glaser R. (Eds.), *Thinking and learning skills: Vol. 2. Research and open questions*. Hillsdale: Lawrence Erlbaum Associates, 1985.
- Siegel, D. *The Developing Mind*. New York: Guilford, 1999.
- Squire, J. *Handbook of Research on Improving Student Achievement*. Arlington: Education Research Service, 1995.
- Stiggins, R. Unpublished paper given at the BC School Superintendents' Conference, Victoria, BC (November, 2002)
- Sylwester, R. The Interrelated Neurobiology of Self-Esteem, Impulsivity, and Aggression. Unpublished conference paper presented at the Staff Development Council of BC conference, Vancouver BC, November, 1996.
- Sylwester, R. *A Celebration of Neurons*. Alexandria: Association for the Supervision of Curriculum Development, 1996.
- Souster, Raymond. *The Wild Wolves of Winter. Reading and Responding*. Toronto: Nelson, 1991.
- Tierney, R. and Cunningham, J. Research on teaching reading comprehension, in Pearson, D. (ed.) *Handbook of reading research*, Volume 2, 609-655. New York: Longman, 1984.
- Tierney, R. and Shanahan, T. Research on the reading-writing relationship: Interactions, transactions, and outcomes, in Pearson, D. (ed.) *Handbook of reading research*, Volume 2, 246-280. New York: Longman, 1991.
- Thornburg, D. THE NEW BASICS: Education and the Future of Work in the Telematic Age. Alexandria, Virginia: Association for the Supervision of Curriculum Development, 2002.
- Walberg, H. Productive teaching, in Waxman, H. and Walberg H. (eds.) *New directions for teaching practice and research*. Berkeley: McCutcheon Publishing Corporation, 1999.
- Wang, M., Haertel, D. and Walberg, H. What Helps Students Learn?, *Educational Leadership* 40 (1) 74-79, 1994.
- Watkins, D., Carnell, E., Lodge, C., and C. Whalley. Effective learning, *Research matters* (5) 1-8, 1996.
- Watkins, C. (2016). [https://www.teachingtimes.com/developing-learning-centred-classrooms -and schools](https://www.teachingtimes.com/developing-learning-centred-classrooms-and-schools).
- Watkins, C. (2016). [https://discovery.ucl.ac.uk/eprint1541114/1/Watkins\\_16\\_Intl\\_Hbk.pdf](https://discovery.ucl.ac.uk/eprint1541114/1/Watkins_16_Intl_Hbk.pdf)
- Watkins, C. (2014). Developing learning-centred classrooms and schools. In Nayhill, M. and Maclean, R. (2014). *International handbook on Life in Schools and Classrooms*. Switzerland: Springer
- West, C., Framer, J. and P. Wolff. *Instructional Design. Implications from cognitive science*. Englewood Cliffs: Prentice Hall, 1991.
- White, N., Blythe, T., and Gardner H. Multiple Intelligences Theory: Creating the Thoughtful Classroom. In A. Costa, J. Bellanca and R. Fogarty (Eds.). *If Minds Matter: A Foreward to the Future*, vol. II, Palatine, IL: Skylight Publishing 1992.
- Wiggins, G. and J. McTighe, J. *Understanding by Design*. Alexandria: Association for the Supervision of Curriculum Development, 1998.
- Willoughby, T., Desmarais, S., Wood, E., Sims, S. and Kalra, M. Mechanisms that facilitate the effectiveness of elaboration strategies. *Journal of Educational Psychology*, 89(4), 682-685, 1997.
- Wolf, M. (2018). *Reader Come Home: The Reading Brain in a Digital World*. NY: Harper Collins.
- Woloshyn, V., Willoughby, T., Wood, E., and M. Pressley. Elaborative interrogation facilitates adult learning of factual paragraphs. *Journal of Educational Psychology*, 82, 513-524, 1990.