

KNOWLEDGE BUILDING: THE THEORY IN A NUTSHELL



Why Knowledge Building, Why Now?

- Knowledge Building (KB) theory and practice is inspired by looking at **how knowledge creating organizations actually operate and how they create new knowledge out in the world** (knowledge creating groups can be scientific think tanks, commercial design labs, networks of software engineers, artist collectives, a community of American Civil war historians, etc).
- **The primary job of knowledge workers is to work creatively with ideas** and produce knowledge artifacts that advance knowledge for the common good. The knowledge artifacts they produce can include anything from designs, to models, problem-solutions, theories, improved products, better procedures, and advanced technologies.
- **Capacities for creative knowledge work are in high demand in the 21st century.** More and more, the social, economic and political well-being of modern societies will rely on the capacity of their citizens to be able to innovate and work creatively with knowledge across all fields (OECD, 2008).
- As stated in the Ontario Ministry of Education's document *Growing Success*, "Education directly influences students' life chances – and life outcomes. Today's global, knowledge-based economy makes the ongoing work in our schools critical to our students' success in life and to Ontario's economic future. As an agent of change and social cohesion, our education system supports and reflects the democratic values of fairness, equity, and respect for all. The schools we create today will shape the society that we and our children will share tomorrow (2009, p. 6).
- There is a strong moral imperative for immersing students in authentic knowledge work from the earliest Grade levels. It is a long-standing reality that the level of knowledge students come to school with generally corresponds to the level that they leave school with. Education has not succeeded in closing this gap. **Growing students' capacity for knowledge work seeks to even the playing field and help to set all students up for success.**
- The capacities for creative knowledge work also include social and collaborative skills that are built from a strong sense of empathy, open-mindedness and healthy communication habits; this in turn **helps students develop themselves socially and emotionally as well as academically.**

- **Knowledge creating organizations have what they call collective intelligence** — a type of knowledge that can only be described *at the group level*. The collective work drives innovation.
- In successful knowledge-creating organizations, innovation is not only the driving force, but it is "part-and-parcel of the ordinary, if not routine" (Drucker, 1985).

So What Is Knowledge Building?

- Knowledge Building pedagogy is based on the premise that **authentic, creative knowledge work can take place in classrooms starting with the youngest students.**
- Knowledge Building is grounded in the **12 KB Principles** that are the foundation of the pedagogy (Scardamalia, 2002). The principles can also be thought of as **the 12 habits of highly creative teams.** They represent the key qualities, traits, and dynamics that characterize knowledge creation organizations of all kinds (see pgs. 15-19 for more information).

Real Ideas, Authentic Problems
Improvable Ideas
Idea Diversity
Epistemic Agency
Democratizing Knowledge
Pervasive Knowledge Building
Rise Above

Symmetric Knowledge Advance
Knowledge Building Discourse
Embedded, Concurrent, & Transformative Assessment
Constructive Use of Authoritative Sources
Community Knowledge, Collective Responsibility

If it had to be summed up in one sentence, Knowledge Building could be described as “**giving students collective responsibility for idea improvement.**”



IDEA IMPROVEMENT!

- At the beginning stages of any creative project, ideas can be a dime a dozen – this is as true in schools as it is in professional worlds. But KB is very much focused on “the hard part,” on moving forward in a promising direction and *improving ideas* over time.
- **Idea improvement is a foundational KB principle, as well as a socio-cognitive norm** that permeates the life and workings of a Knowledge Building community. In KB, students are responsible for not only improving their own ideas but also for *contributing to advancing the ideas and knowledge of the community as a whole.*
- Idea improvement and knowledge advances can sometimes take the form of great breakthroughs (such as Einstein's theory of relativity), but most often, idea improvement happens in small increments and thanks to contributions from many different people. Everything from scientific theories to public policies to smartphones have advanced due to the collective effort of communities dedicated to improving ideas.
- For a community of learners, the creation of new knowledge constitutes any collective knowledge advances that are new to that particular community.

LEARNERS WORK ON AUTHENTIC PROBLEMS OF UNDERSTANDING

- Students work on problems of understanding that are truly authentic and meaningful to them (e.g., Why is the Arctic melting, what can we do about it? How does space exploration affect our daily lives? How are rainbows made?).

LEARNERS SHARE COLLECTIVE RESPONSIBILITY FOR KNOWLEDGE ADVANCEMENT

- In Knowledge Building, the **students are expected to increasingly take on the kinds of high-level responsibilities that have been traditionally reserved only for the teacher** — with help and support from the teacher, technology, and their peer community.
- A distinction between Knowledge Building and other educational approaches is **the imperative for every member of a classroom community to be contributing and advancing collective, public knowledge**, rather than just their own individual learning.



LEARNING AND KNOWLEDGE BUILDING – AN IMPORTANT DISTINCTION!

- **Learning is a very different phenomenon than Knowledge Building/knowledge creation.** Learning often refers to an *internal* and *invisible* process that goes on within an individual and is geared towards producing changes in individual belief or attitude; Knowledge Building is an *overt* activity that produces **knowledge and ideas that have a public life**. It refers to a **collective enterprise** as opposed to an individual mental process.
- **From a Knowledge Building perspective, learning inevitably occurs as a by-product of engagement in creative knowledge work.** It is virtually impossible for a student to be participating in authentic knowledge creation and *not* be learning at the same time.
- **Studies show Knowledge Building boosts achievement** in the following areas: basic literacies such as reading and writing as well as disciplinary literacies (e.g., science, math, history, engineering, language arts, chemistry, phys. ed., social studies, the arts), and epistemic literacies (e.g., how scientific knowledge is created) (Chen & Hong, 2016). KB research spans K-12, professional learning contexts, and four continents, including urban, rural, mainstream and Aboriginal contexts (Scardamalia & Egnatoff, 2010).
- **Students love to do it!** Motivation skyrockets, conversations at the dinner table change, and behavioural issues disappear when students can pursue creative work on issues they are passionate about, and when they feel that they are valued contributors to a supportive and dedicated community that is bound together by common goals.

“I really enjoy that there’s a community I can rely on, and I enjoy that I’m doing something that involves my passion, and it doesn’t feel like work!” — KB student

“It feels like my opinion is more valid and it boosts my confidence knowing that people are listening to me” — KB student

None of us is as smart as all of us! — Japanese proverb