What is Knowledge Building?

Knowledge Building is a theoretical model developed by Carl Bereiter and Marlene Scardamalia for describing what a community of learners needs to accomplish in order to create knowledge. The model is distinguished from similar activities such as collaborative inquiry or problem-based learning by an emphasis on collective cognitive responsibility. (Zhang, Scardamalia, Reeve, & Messina, 2009).

> "Knowledge building provides an alternative that more directly addresses the need to educate people for a world in which knowledge creation and innovation are pervasive. Knowledge building may be defined as the production and continual improvement of ideas of value to a community, through means that increase the likelihood that what the community accomplishes will be greater than the sum of individual contributions and part of broader cultural efforts." (M. Scardamalia, & Bereiter, C. , 2003)

Scardamalia identifies twelve principles of Knowledge Building as follows:

1. *Real ideas and authentic problems.* In the classroom as a Knowledge Building community, learners are concerned with understanding, based on their real problems in the real world.
2. *Improvable ideas.* Students' ideas are regarded as improvable objects.
3. *Idea diversity*. In the classroom, the diversity of ideas raised by students is necessary.
4. *Rise above.* Through a sustained improvement of ideas and understanding, students create higher level concepts.
5. *Epistemic agency.* Students themselves find their way in order to advance.
6. *Community knowledge, collective responsibility.* Students' contribution to improving their collective knowledge in the classroom is the primary purpose of the Knowledge Building classroom.
7. *Democratizing knowledge*. All individuals are invited to contribute to the knowledge advancement in the classroom.
8. *Symmetric knowledge advancement*. A goal for Knowledge Building communities is to have individuals and organizations actively working to provide a reciprocal advance of their knowledge.
9. *Pervasive Knowledge building*. Students contribute to collective Knowledge Building.
10. *Constructive uses of authoritative sources.* All members, including the teacher, sustain inquiry as a natural approach to support their understanding.
11. *Knowledge Building discourse*. Students are engaged in discourse to share with each other, and to improve the knowledge advancement in the classroom.
12. *Concurrent, embedded, and transformative assessment*. Students take a global view of their understanding, then decide how to approach their assessments. They create and engage in assessments in a variety of ways. (M. Scardamalia, 2002)

The focus of the Knowledge Building project was on supporting teachers in adopting a knowledge building stance in their classrooms. The project included face-to-face professional development sessions, along with Adobe Connect online webinar sessions, and in-school support from staff from the

Ontario Institute for Studies in Education (OISE), University of Toronto (UT), Literacy and Numeracy Secretariat (LNS) and Ministry of Education.

What is the Knowledge Forum software?

Knowledge Forum software was presented as a tool to facilitate knowledge building. The Knowledge Forum software was designed to help and support knowledge building communities. The software was designed initially by York University and development continued at OISE/UT. The Institute for Knowledge Innovation and Technology (IKIT) at OISE is responsible for future development of Knowledge Forum.

What have we learned about Knowledge Building and the Knowledge Forum software at HWDSB?

In February 2014, three schools within the HWDSB embarked on a tri-board pre-pilot Knowledge Building project. The LNS and IKIT at OISE provided training and professional development resources to support the teachers in learning about and integrating Knowledge Building within their classrooms.

A case study was completed with HWDSB staff to learn about the conceptual, practical and empirical aspects of Knowledge Building and to inquire into the professional development needs of teachers when incorporating Knowledge Building into their classrooms. During the case study, teachers described how collaborative inquiry is a part of Knowledge Building and offered some examples of how Knowledge Building was integrated into the curriculum and into their classrooms.

Principals and teachers identified enablers for successful Knowledge Building as well as roadblocks faced during this project. Two schools had sufficient Wi-Fi access to explore the Knowledge Forum software, but due to compatibility issues only one school actually used the software. Although the teachers saw the benefits of the software they easily engaged in Knowledge Building using the internet, other electronic tools, and classroom resources.

Teachers believed that this project had a positive impact on both their own professional development and on student learning. During the 2014/15 school year, the teachers involved in this project plan to integrate Knowledge Building in their classrooms (starting in September). They also hope that additional teachers will have the opportunity to learn about Knowledge Building and integrate this way of teaching in more classrooms.

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