Professional Development Network for Knowledge Building in Schools (KBTN)
Knowledge Building Training Workshop 2
知識建構教師發展網絡計劃 – 知識建構工作坊 **2**

Date 日期: **15 November 2008 (Saturday)**
Time 時間: **9:00a.m. – 12:30 p.m.**
Venue 地點: **Room 101, 1/F Runme Shaw Building, CITE, The University of Hong Kong**.
香港大學教育應用資訊科技發展研究中心邵仁枚樓一樓 101 室

Program Rundown
活動程序表

9:00 – 9:15   **Registration 登記就座**

9:15 – 9:30   **Introduction 簡介**
Speech 致辭
    – Mr. Edwin Tsui Kai-cheung, Principal Education Officer, School-based Support Services, EDB
Welcoming 致歡迎辭
    – Prof. Nancy Law, HKU
Talk: Knowledge Building and Teacher Community 短講: 知識建構教師共賦能
    – Dr. Carol Chan, HKU

9:30 – 10:15   **Experience Sharing from New Network Teachers 教師網絡新成員的經驗分享**

10:15 – 11:10   **Knowledge Building in Action 知識建構的實踐**
    – Dr. Jan van Aalst & Dr. Carol Chan, HKU

11:10 – 11:25   **Break & Refreshment 茶點**

11:25 – 12:10   **International Collaboration 國際協作**
    – Prof. Nancy Law, Mr. Patrick Lam & Ms. Hidy Tse

12:10 – 12:30   **KLA Group Sharing and Q & A 小組分享及提問時間**
    – Seconded Teachers, Teacher Associates & Project Team

Knowledge-building community model

Definition

We define **Knowledge-building community model** is a socio-constructivist pedagogic strategy developed by what we can call the "Toronto school". that emphasized instructional design models that focus on a combination of situated learning, writing-to-learn, knowledge building, community, etc. It does have points in common with inquiry-based learning, i.e. the idea that learners should create knowledge through collective and collaborative inquiry. There is also a relation to transformative pedagogy and community of learning concepts.

Bereiter and Scardamalia believe a knowledge-building community should be modeled after scientific research centers, where "problem redefinition at increasingly high levels is the goal, based on a fundamentally social process. Researchers benefit from the advances of others, with continual interplay of findings, not just among scientists working concurrently but from generation to generation."(1994). Knowledge-building communities support discourses that aim to advance the knowledge of the members collectively, while supporting individual growth with the aim of producing new experts and extending expertise within the community's domain.

A KB community can engage in collecting information, supporting discourse and exchanges, encouraging a social and professional network of learners and experts and making the knowledge acquired collectively available for future use. That even children in elementary school levels can engage in knowledge-building makes the process accessible to all levels of education.

Bereiter and Scardamalia's knowledge-building model for educational contexts suggests a way to organize instruction so that student initiated contributions to the collective knowledge and peer evaluation of knowledge produced is possible. Knowledge forum is their technological response to the needs of building a KB community through "knowledge-building discourse".

Knowledge-building discourse

Knowledge-building discourse has certain characteristics defined by Bereiter and Scardamalia (1994) and outlined here:

- Focused on problems, not topics; knowledge is advanced through discussion and argumentation in the effort to understand concepts and resolve discrepancies.
- Decentralized, open knowledge building, with a focus on collective knowledge through constructive social interactions with others engaged in similar or related problems.
- More knowledgeable members are engaged in the knowledge-building process, but do not delineate the limits of investigation.
- Less knowledgeable members' participation is valued as it determines the gaps, inadequacies, difficulties in the knowledge being created that can demand a clarification of ideas by the 'experts'.
- Engages a broader knowledge community than that involved in the current local problem, bringing in views from the outside.
- Makes for a "second order environment" (one where the one's adaption to the environment changes the environment itself) where one's contributions can determine what contributions will follow, thus changing the direction of the discourse and the knowledge constructed.

These characteristics are built into the framework of CSILE designed as "an enabling technology for knowledge-building discourse."

A summarizing excerpt from the poster session "Sustaining knowledge building communities: E-learning and knowledge building environments" at an ikit.org event in 2004

Sustaining knowledge building communities online requires the creation of electronic environments that support both formal and informal learning, and capture significant tasks and activities that are central to the day-to-day work of the participants. These environments must provide supports for real world activities and learning, while providing the potential for something more. That something more is knowledge building, or the production and continual improvement of ideas of value to a community (Scardamalia & Bereiter, 2003). Knowledge building is emergent; an environment that supports it must evolve from the contributions of team members and demonstrate collective knowledge advances. Sustaining knowledge building communities online requires the creation of electronic environments that support both formal and informal learning, and capture significant tasks and activities that are central to the day-to-day work of the participants. These environments must provide supports for real world activities and learning, while providing the potential for something more. That something more is knowledge building, or the production and continual improvement of ideas of value to a community (Scardamalia & Bereiter, 2003). Knowledge building is emergent; an environment that supports it must evolve from the contributions of team members and demonstrate collective knowledge advances.

The instructional design model

The Toronto school advocates a model that differs radically from the current trend of strong scenarisation that we can find in various schools of thought in CSCL or learning design. To state it bluntly, modern learning-design and CSCL is about filling in forms and acquiring existing beliefs and such these approaches are not that different from very traditional instructional systems design.

The model is somewhat related to the inquiry-based learning. The major difference is that advanced teachers not necessarily follow a rigid inquiry circle, but rather opportunistically (in the sense of artificial intelligence planning vocabulary) guide the process. Beginning teachers however, can be encouraged to follow a more structure model. Knowledge building is not unguided ("radical constructivist") discovery learning, since the teacher does play an important role to insure that knowledge-building activities will lead to results.

Research approaches and tools

Recent versions of knowledge forum have built-in data-collection and analysis tools. Most Toronto school research can probably be situated in the design-based research tradition founded by Ann Brown in the early 1990s.

To measure increase in scientific thinking and knowledge gain, Jianwei Zhang et al. (2007:112) present a table of research questions and analysis that we reproduce in *summarized* form:

Dynamics	Specific questions	Analyses	Expected performances
Idea improvement	How do questions and ideas evolve and refine over time ?	Trace the change of student's ideas.	Students shift toward a more scientific view.
Real ideas, authentic problems	How are real-world empirical data used ?	Use of empirical data as evidence on quality of ideas.	Students bring valuable data into the discourse and make sense of them.
Community knowledge	How do individual contributions spread and how are they used ?	Analyze contributions to the work of others and related knowledge gains.	Students interact in a way that supports conceptual advancement.
Constructive use of authoritative sources	What are the patterns of their use ?	Use of expert resources.	Students integrate expert and go beyond given information to generate and improve their ideas.
Overall	Overall measure of knowledge gains	Pre- and post-test comparisons; analyses of student portfolios. Correlations.	Improvement of performance pre- to post-test; Students' portfolio notes reflect high levels of scientificness and epistemic complexity. Indicators of the dynamics correlate with quality of ideas in portfolio notes.

Examples

- This wiki (to some extent only, i.e. DKS believes that he and some of his students learnt something about educational technology by writing and linking concepts)
- Social software websites like built with tools like ELGG (e.g. [1] or [2]) may other partial implementations of this model).
- Most "strong" examples can be found in various knowledge forum websites and that are usually not open to the public.
- KP-LAB (A EC project focusing on creating a learning system aimed at facilitating innovative practices of sharing, creating and working with knowledge in education and workplaces. 2006+).

Technology

- CSILE and Knowledge Forum
- Wikis, in particular sophisticated wikis like Mediawiki on which this one is based
- C3MS and other kinds of portalware
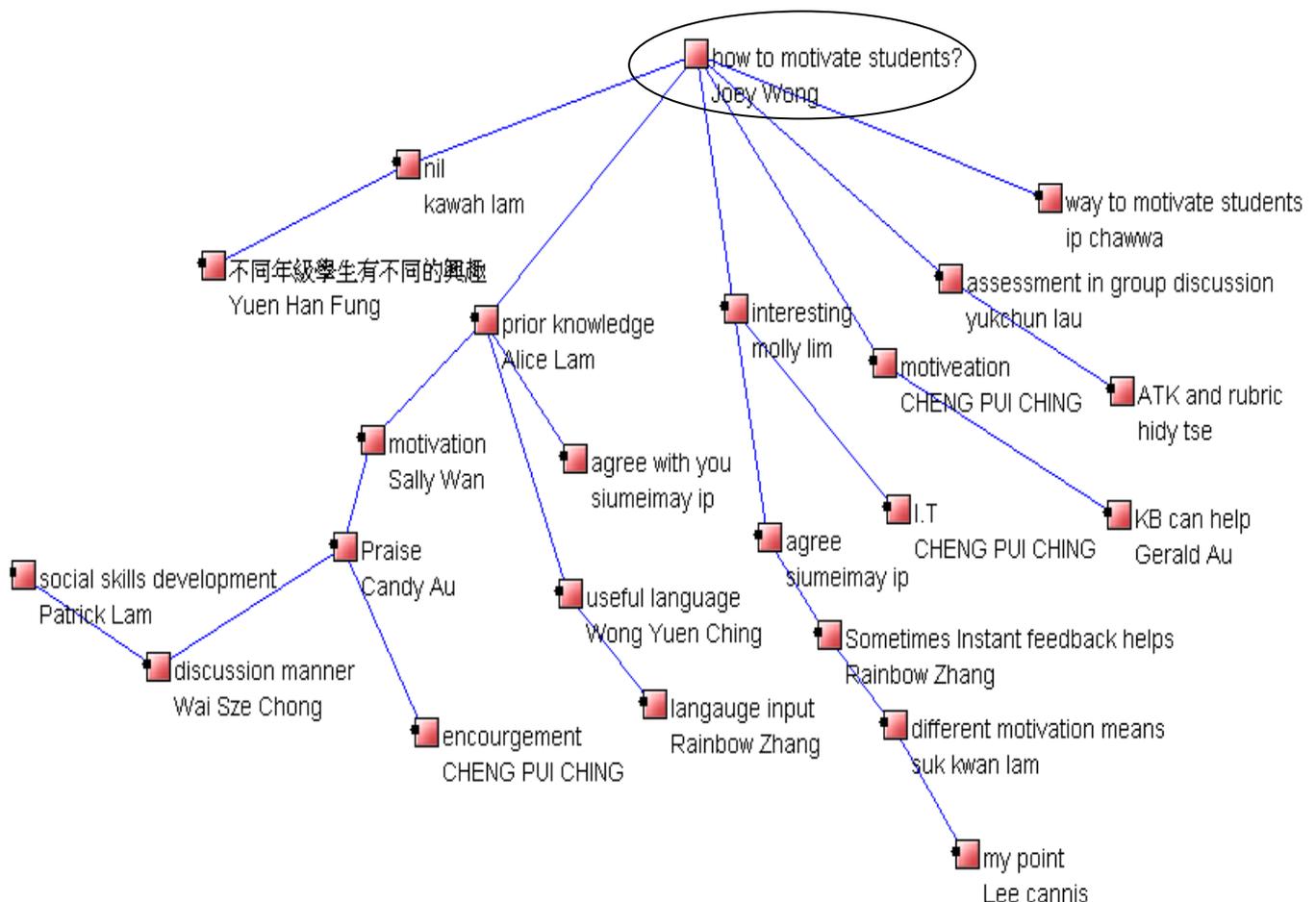- LMSs (by repurposing the way they are intended to be used !).

How to Start Knowledge Building in the Classroom?

Here are some examples of the wonderful discussion of our knowledge-building teacher community.

Do you like this thread of discussion? Would you be happy if your students produce something like this?

1) What do you think about the activity we had done before you started writing on KF?
2) What do you think about the design of the view? (see the back of this page)
3) What is the quality of discussion? (Who started the thread? Who wrote? What are the themes?)
4) What is next? If you were the teacher, what would you do to follow up?
5) What is knowledge building? Are we doing knowledge building?

One of our discussion threads:

The view design of one of our discussions:

Useful Links

Knowledge Building Teacher Network (KBTN)
CITE, The University of Hong Kong

Resources Web
http://kbtn-resources.cite.hku.hk

Project information
http://kbtn.cite.hku.hk
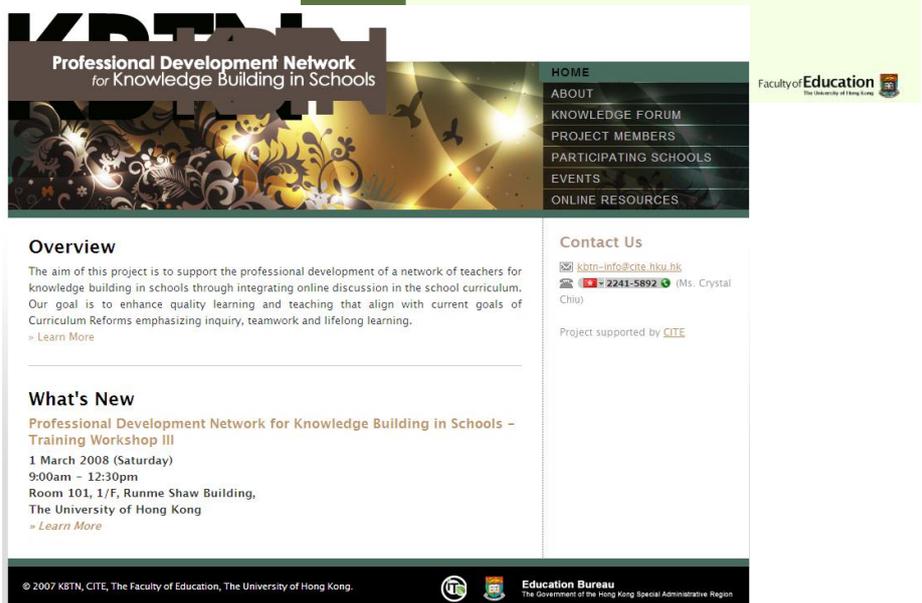
KF Databases
Lite version
http://kf.cite.hku.hk/kforum
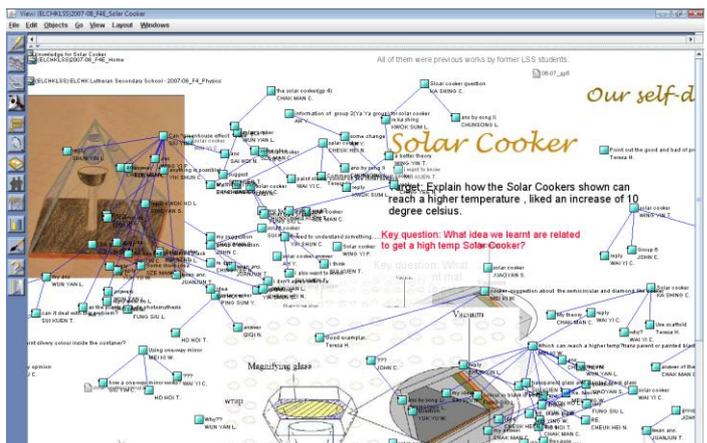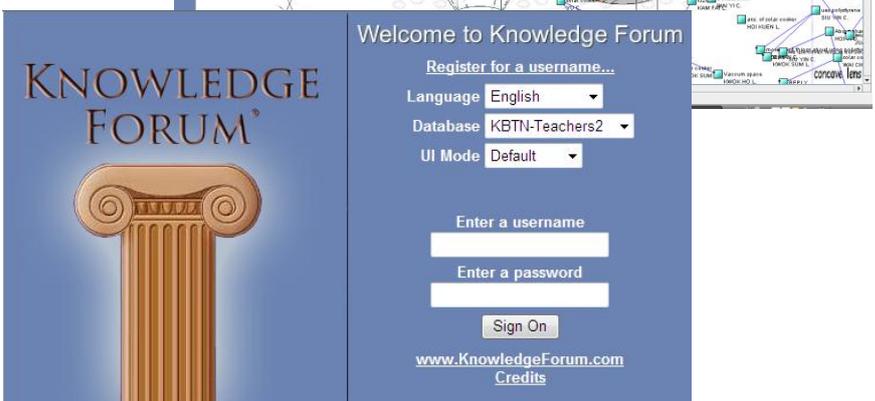Basic/Enhanced version
http://kf.cite.hku.hk

* Enhanced mode of KF is java based, so an appropriate J2SE Runtime Environment (JRE) must be installed to run the program. (Minimum requirement for full functioning: JRE 6 Update 2)

KF Demo - Workshop Materials
KF Database: KBTN-Teachers2
Login name: guest01.......guest60
Password: guest01.......guest60

Knowledge Building Online Course for Teachers
CITE, The University of Hong Kong (Chinese & English)
http://lcp.cite.hku.hk/resources/kbsn/

Centre for Information Technology in Education (CITE)
The University of Hong Kong
http://www.cite.hku.hk

Knowledge Forum (KF)
Learning in Motion, United States
http://www.knowledgeforum.com

Institute for Knowledge Innovation and Technology (IKIT)
University of Toronto
http://ikit.org/ksn.html

SUCCESS

_____
_____
_____
_____
_____
_____
_____

What we have tried out in our classroom

DIFFICULTIES & QUESTIONS

_____
_____
_____
_____
_____
_____

PLANS

_____
_____
_____
_____
_____
_____
_____

WISH LIST

_____
_____
_____
_____
_____