Centre for
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Empowering communities and transforming learning

Professional Development Network for Knowledge Building in Schools

知識建構教師發展網絡計劃

A Teacher's Guide to Knowledge Building

28 Aug 2010

Materials Developed By
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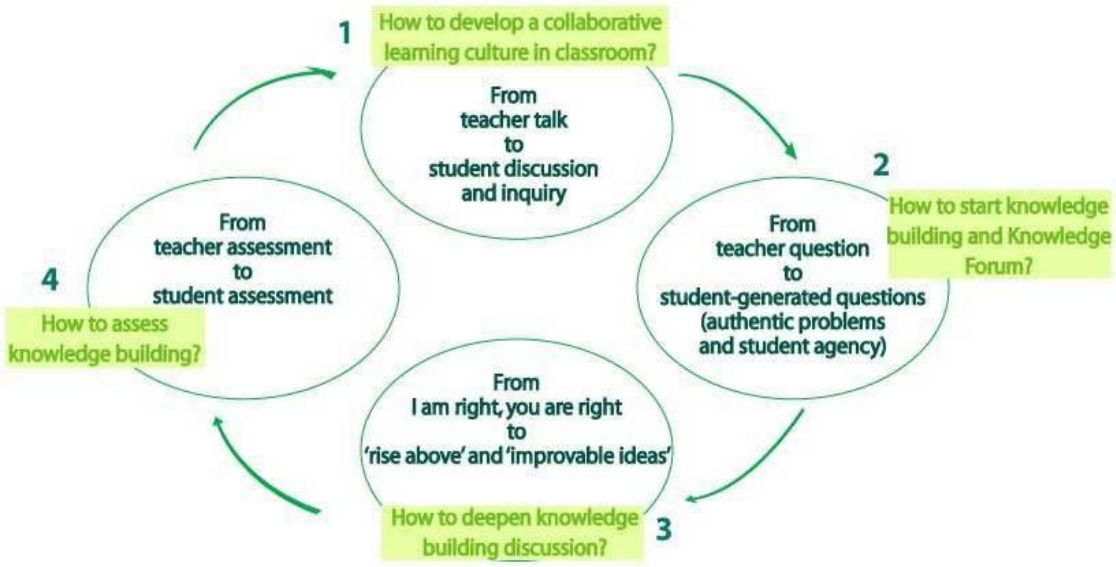
Faculty of Education
The University of Hong Kong

Contents

How to conduct knowledge building in classroom?



Knowledge Building Principles

- Real ideas, authentic problems (relevant to daily life) 討論投入 聯繫現實
- Epistemic Agency (active learning and ownership) 追求知識 自主自力
- Idea diversity (multiple-perspectives) 多元觀點 正反並現
- Community knowledge (team building and collective benefit) 共同承擔 知識無限
- Improvable ideas (continuous improvement) 不斷鑽研 完善觀點
- Rise above (deepening) 融會總結 昇華超越
- Constructive Use of Authoritative Sources (use of information) 善用權威 助己發揮
- Democratizing knowledge (catering for individual difference) 知識面前 平等參建
- Embedded and transformative assessment (assessment for learning) 時刻反思 改進認知
- Knowledge building discourse (productive discussion/ inquiry) 討論交流 建構為優
- Symmetric knowledge advancement (win-win situation) 跨組參詳 並行成長
- Pervasive knowledge building (different subjects/ inside-outside school) 知識建構 無處不透

Phase One – How to develop a collaborative learning culture in the classroom?

From Teacher Talk to Student Discussion and Inquiry

Section Outline

Background and General Considerations

1. *Understanding students' prior knowledge*
2. *Making use of groups*
3. *Facilitating initial inquiry*

Teaching Strategies (Principles and Four-Step Procedures)

1. *Step One: Provide information to stimulate students' thinking on the problem*
2. *Step Two: Scaffold students' group inquire*
   a. *Using think cards or worksheets with probes and scaffolds*
   b. *Reciprocal teaching*
   c. *Other instructional methods*
3. *Step Three: Make ideas public on the Knowledge Building Wall*
   a. *Using big posters*
   b. *Using post-it notes*
4. *Step Four: Facilitate students to choose questions for discussion and inquiry on Knowledge Forum*

Demonstration of the four step procedure in the KNBN workshop

Background and General Considerations

1. ***Understanding students' prior knowledge***

Find out students' prior knowledge in the topic as well as their past experience and level of skills in both classroom discussion and online discussion. Such understanding is helpful to teachers in developing strategies to facilitate students' discussion. For example, teachers may prompt students to relate the topic to concepts learnt in other subjects, they may develop the norms for group inquiry (探索) together with the students, they may provide short "crash course" to get students familiarize with word processing (especially for Chinese input methods).

2. ***Making use of groups***

For students in Hong Kong, it is perhaps easier for individuals to speak up in a small group and on behalf of the group before they are confident enough to speak to the whole class as an individual. The method of grouping varies according to students' and teachers' needs. For example, students may form groups voluntarily or teachers can assign students into mixed-ability groups. Some teachers find that having a group leader/seed student/role-taking help motivate the others. Depending on the group dynamics, students can take turn to be leaders, vote for their own leaders, or not having one at all in a later stage when all members become active participants in KB.

3. ***Facilitating initial inquiry***

Set some initial task to orientate group work. Assign some reading materials or instruct students to do library search so that they have something to say on the day of classroom KB activities.

Developing KB classroom

The aim of classroom knowledge building activities is to develop a positive 'discussion, sharing and inquiry culture' among students in which they feel 'psychologically safe' to risk voicing half-baked ideas, building on and critiquing each others' views. It prepares students with the proper attitudes and skills to be adopted in later inquiry and discussion on Knowledge Forum.

Teaching Strategies

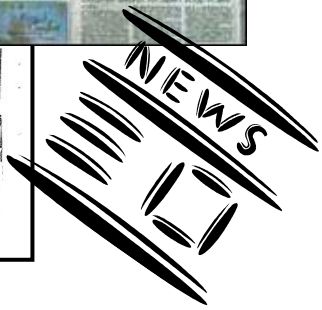
(Principles and Four-Step Procedures)

1. ***Step 1: Provide information to stimulate students' thinking on the problem***

Information can be provided in terms of:

- Short presentations by students on the information they gathered in the initial task;
- A short talk by the teacher on the problem/issue;
- Presentations of other materials such as video clips, newspaper articles, readings, survey reports, photos and comics.
- Experience from firsthand activities,

  e.g. field trips, visits, games.



2.Step 2: Scaffold students' group inquiry

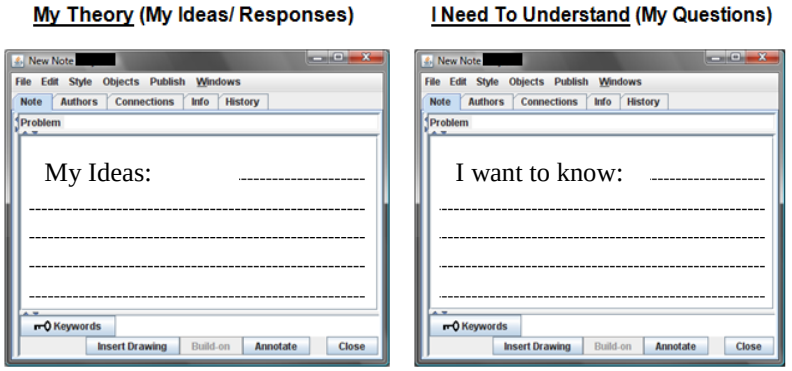
After the presentation of stimuli, students should engage in group inquiry, which can be facilitated by a number of strategies, the following are some examples:

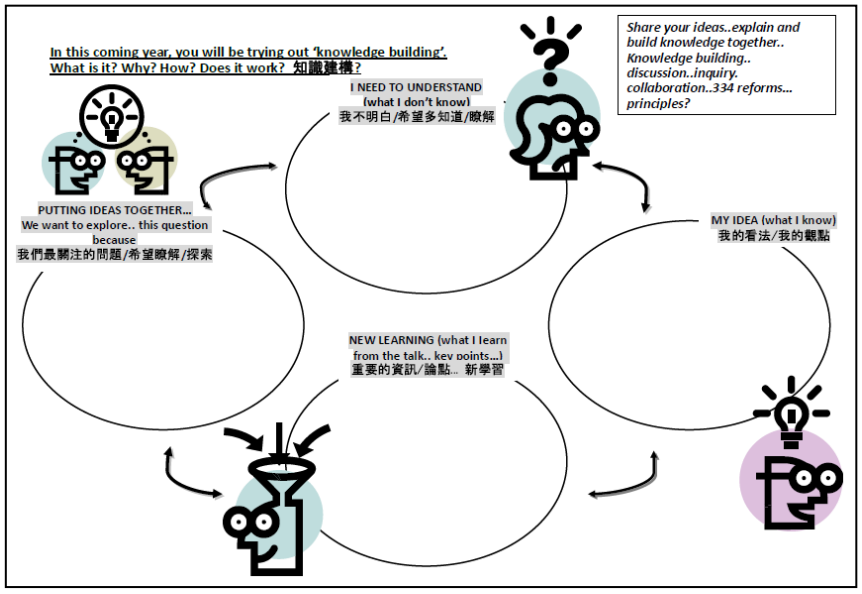
a. Using think cards or worksheets with probes

Think cards and worksheet may include the following probes:

- KWL – "What I know", " What I want to know" & "What I learned"
- "I need to understand"
- "New learning"
- "My idea"/ "My theory"
- "My evidence is" / "How to explain this?"
- "How does it work?"
- "How is it possible?"
- "I agree"
- "I disagree"
- "Putting ideas together"
- "How could this be better?"

Examples from our workshop





Ms. Lau & Ms. Chan (English teachers from St. Patrick's Catholic Primary School (Po Kong Village Road)

Knowledge Building – Brainstorm

Topic: _____

By Group _____ **(** _____

What do we know?	What do we want to know?
How do we research the information?	What have we learned?

Group 1 and 2

Knowledge Building – Elaboration and Sharing

Topic: _____

What do we want to know?

Extra Ideas / Comments

What have we learned?

What have we learned?

Add-on questions

b. Reciprocal Teaching （相互教學）

It is a teaching technique developed base on constructivist theories to promote comprehension and thinking skills. There are four strategies for reciprocal teaching, namely 'Question', 'Summarize', 'Clarify' and 'Predict'. Teachers first demonstrate to students how to use these four strategies through a discussion with the students. Afterwards, students take turns to role-play as the little teacher of the group to lead the discussion. The strategies are briefly explained below:

(1) Question – students generate questions about the key concepts of the reading

(2) Summarize – students use their own words to express the main ideas of the content

(3) Clarify – students try to solve the difficult problems they encountered during reading, e.g. clarifying the meaning of the words and concepts

(4) Predict – based on prior knowledge and known information, students make predictions of the later part of the reading content and decide on the direction of further reading

Ms. Chan (A Chinese Teacher from YOT Tin Ka Ping Secondary School)

《西遊記》工作紙（1）

根據《西遊記》**第 1-21 頁（拜師學藝）**，請回答下列各題：

個人

1． 我認為這部分最重要的最重要資訊（內容大要）是：_____

_____

2．我不明白／想瞭解的地方是：_____

_____

需要澄清／想瞭解的原因是：_____

_____

3． 我認為這部分最值得討論的問題是：_____

_____

我建議的答案是：_____

小組討論

由「1 號」同學帶領討論下列問題：

1. 經討論後，我們認為這部分的最重要資訊（內容大要）是：_____

_____

由「2 號」同學帶領討論下列問題：

2. 我們不明白／想瞭解的地方是：_____

_____

需要澄清／想瞭解的原因是：_____

_____

由「3 號」同學帶領討論下列問題：

3. 經討論後，我們認為這部分最值得討論的問題是：_____

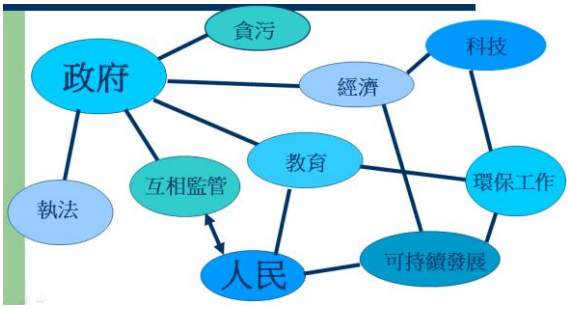
_____

我們建議問題的答案是：_____

_____

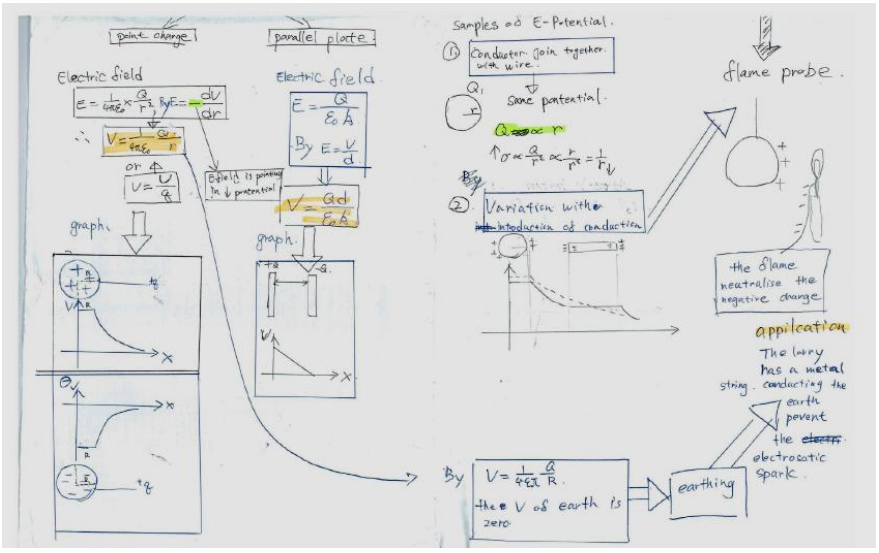
c. Other instructional methods

- Think-Pair-Share
- Jigsaw learning
- Concept mapping



Concept map drawn by students studying Physics

Ms. Ho (A Physics teacher from ELCHK Lutheran Secondary School)



3. ***Step 3: Make ideas public on the Knowledge Building Wall***

After discussion, students should have formulated their own ideas and some questions for further inquiry. They should be asked to share their work with the whole class with the use of Knowledge Building Wall. This activity is similar to and prepares students for writing notes on KF.

There are two common forms of Knowledge Building Wall:

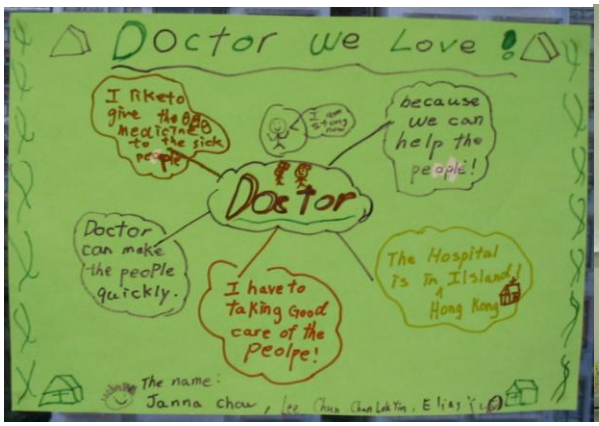
a. Using big posters

Each group can write one or several questions they want to examine most on a big poster and post it onto the board for everyone to see. Teachers may ask each group to present and explain why they think those are questions worth for inquiry.

A student is making his ideas public by poster presentation.
(Ms. Sin, a Chinese teacher from SMKMCF Ma Ko Pan Memorial College)

Posters drawn by primary students studying General Studies

(Mr. Fung, Ms. Hui & Ms. Ngan, General Studies teachers from Kau Yan School)

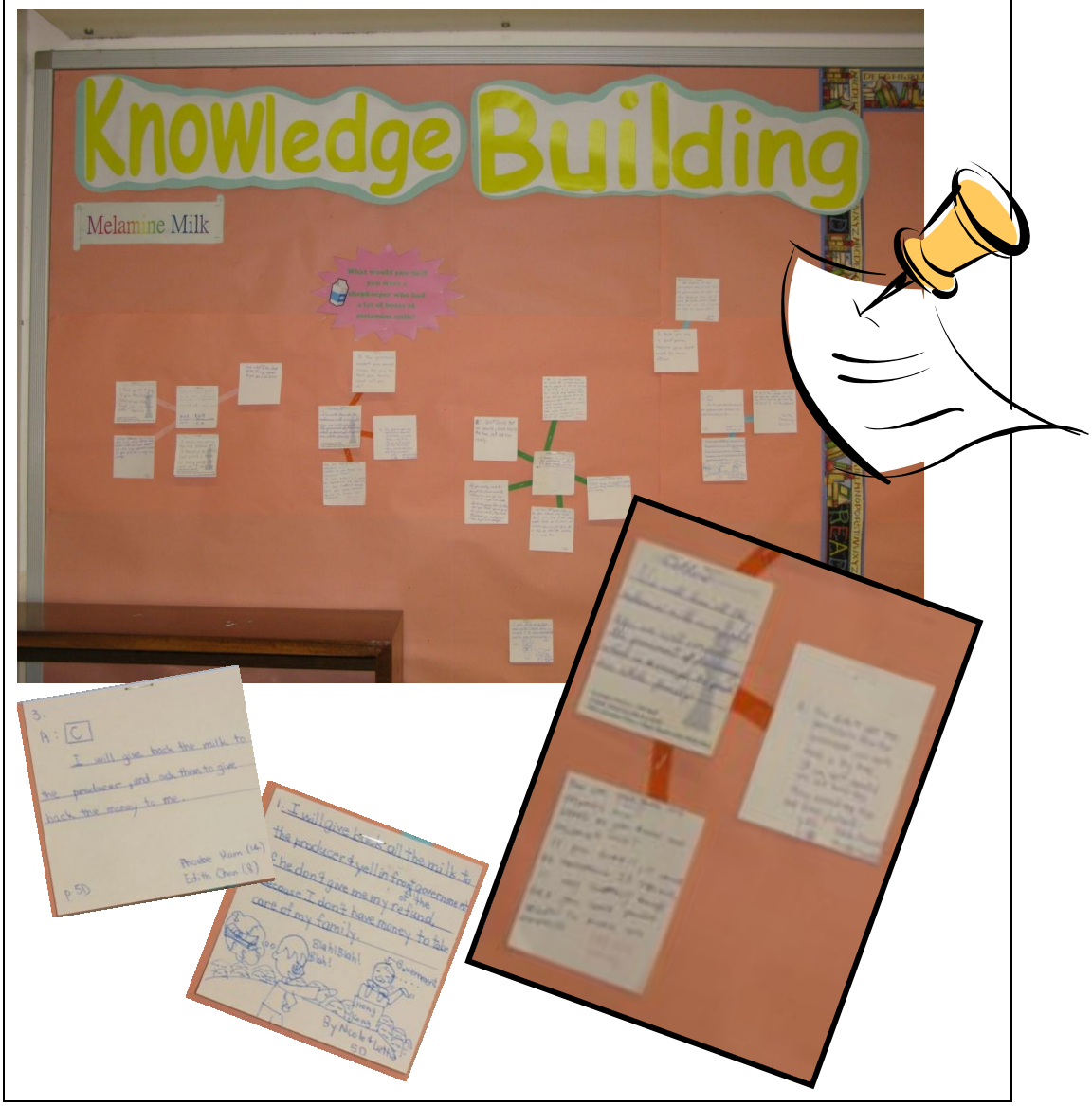


b. Using post-it notes

Knowledge Building cannot be learnt in one single lesson. Knowledge Building should be experienced continuously, if it is to bring changes to students' way of learning. To provide students with KB experience in everyday learning, teachers may consider assigning one of the classroom notice boards as the permanent "Knowledge-Building Wall", on which students are encouraged to write about their opinions on certain issues regularly and give feedbacks or question other classmates' ideas, thereby simulating a KF discussion.

Examples from our network teachers

Miss Wong & Miss Lam (English teachers from Marymount Primary School)



4. ***Step 4: Facilitate students to choose questions for discussion and inquiry on Knowledge Forum***

Teachers facilitate students to distinguish which are good students' questions for inquiry. Good questions usually…

- Do not ask for descriptive or factual information and Do not have a clear and simple answer
- Are Broad, ill-structured and multifaceted
- Are Embedded with various concepts and values related to the curriculum (big ideas)
- Are Authentic and related to daily life
- Can arouse students' interest

Ms. Sin (A Chinese teacher from Tin Ka Ping Secondary School)

題目
1. 生果金需要入息審查嗎？
2. 曾特首指出生果金的討論是不理性的討論。你同意嗎？
3. 浮雲的出處是什麼？
4. 一個領袖是否要顧及所有民意？
5. 以曾特首視民意如浮雲的觀點，試分析他的性格。
6. 增加生果金對政府的利弊。

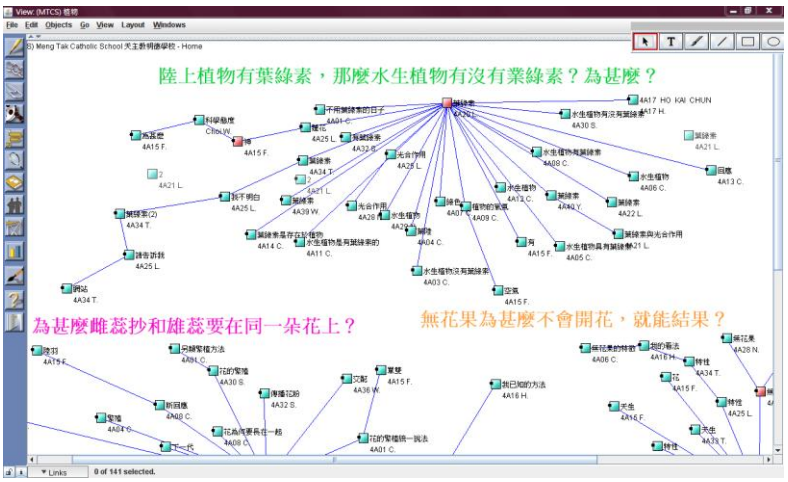
我認爲「有探討價值」的兩道題目是： 1 2 3 4 5 6 （請圈出答案）
我的理由是：

基本層次的問題
- 要求複述或重整
- 涉及基本知識、事件內容
- 只需要知道事件和現象的表徵
- 很快便有答案，討論空間狹窄
- 如：是否、何時、何地、何人、甚麼…

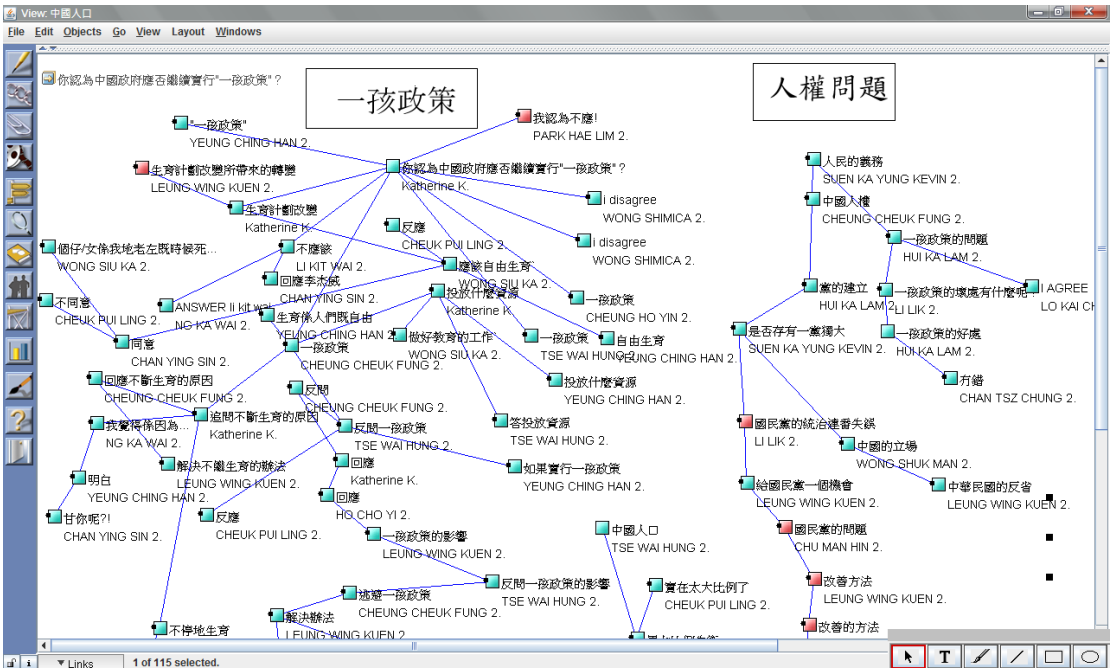
高層次的問題
- 需要經過理解和分析
- 可以讓人發揮伸展和評鑑的能力
- 能從個別現象提升到普遍現象
- 如：為甚麼、如何/怎樣…

Students then discuss and decide on the inquiry questions. Although questions emerge from students, teachers can facilitate in ways so that these questions still relate to key curriculum concepts. One way to achieve this, is by facilitating students to categorize these questions into several key areas for further discussion on Knowledge Forum.

Mr. Choi & Mr. Tang (General Studies teachers from Meng Tak Catholic School)



Ms. Kam (An Integrated Humanities teacher from C.C.C. Kei To Secondary School)



Reflection

1. Which of these ideas and examples do I like most? Do I have similar experience? Do I have new ones to add?
2. How can I apply these knowledge building principles and teaching strategies with my students?

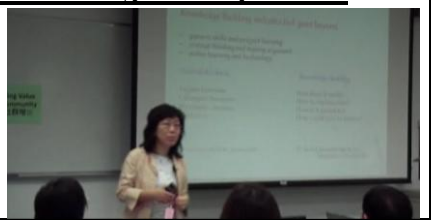
◖ My Ideas ◗

◖ My Questions ◗

Demonstration of the Four-Step Procedure in the KBTN workshop

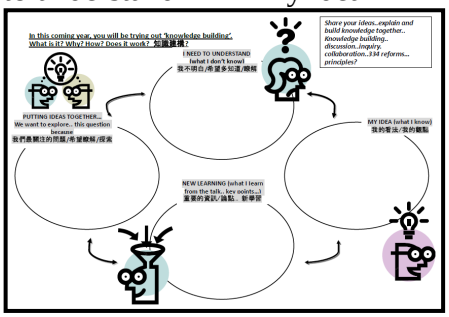
Step One: Provide information to stimulate learners' thinking on the problem

Dr. Carol Chan (teacher) gave a short talk on Knowledge Building (the problem/issue) to stimulate workshop participants' (learners') thinking.



Step Two: Scaffold learners' group inquiry

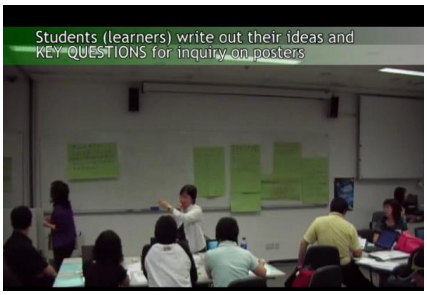
Seconded Teacher, Ms. Fung Yuen Han (teacher) arranged workshop participants (learners) to work in groups and scaffolded them with probes on worksheet. ("I need to understand" --> "My idea" --> "New learning" --> Putting ideas together)



Teacher associate, Mr. Eddy Lee (teacher) reminded workshop participants (learners) to **build on** each other's ideas during discussion rather than merely expressing one's ideas.

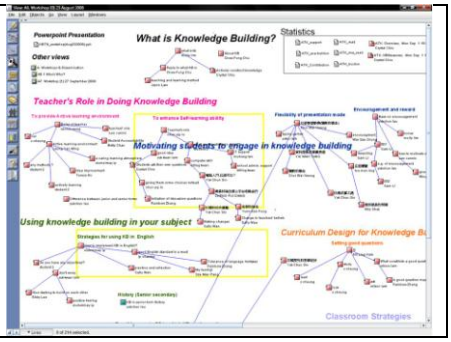
Step Three: Ask learners to display their ideas and key questions for inquiry

Each group of workshop participants (learners) was asked to write the question(s) that their group wanted to examine most on the poster (ideas put together)



Step Four: Facilitate students to choose questions for discussion on KF

Mr. Eddy Lee (teacher) explained to workshop participants (learners) about the key areas (rather than assigning questions for them to discuss) to be discussed on KF



Please visit http://kbtn-resources.cite.hku.hk/KB_PhaseOne.html for the demo videos of Four-Step procedures.

From Teacher-Designed Questions to Student-Generated Questions

Section Outline

Questions for Inquiry

1. *Students' questions based on classroom discussion*
2. *Students' questions based on metacognition*
3. *Students' questions based on readings*
4. *Students' questions based on field trip*

Tips for Encouraging and Facilitating Students' Knowledge Building on KF

1. *Students' interest and incentives*
2. *KF skills*
3. *Build-on*
4. *Feedbacks*

Questions for inquiry

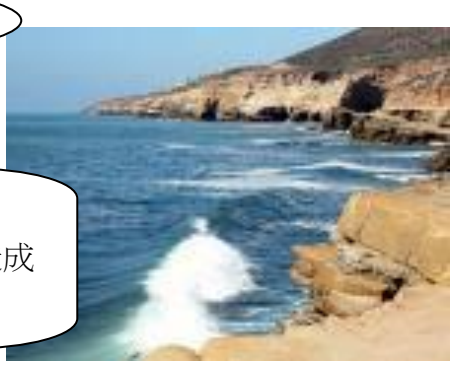
1. Students' questions based on classroom discussion

In phase one, students should have generated some worth-inquiring questions during classroom discussion. In phase two, students should adopt these questions and post them onto the Knowledge Forum for online discussion. This method provides a good linkage between phase one and phase two.

The following some examples of student-generated questions based on classroom discussions.

Ms. Kam (A Geography teacher from C.C.C. Kei To Secondary School)
Students-generated questions on the keywords, Ocean & Climate

若沒有海洋，氣候會如何？

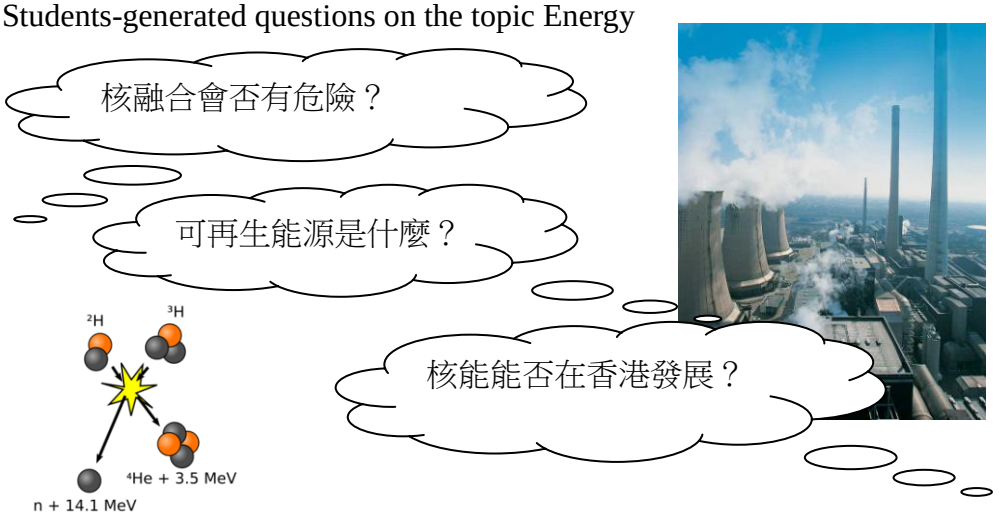


被污染的海水會連帶污染物一起蒸發嗎？若是，加上空氣污染的問題，會造成更嚴重影響嗎？

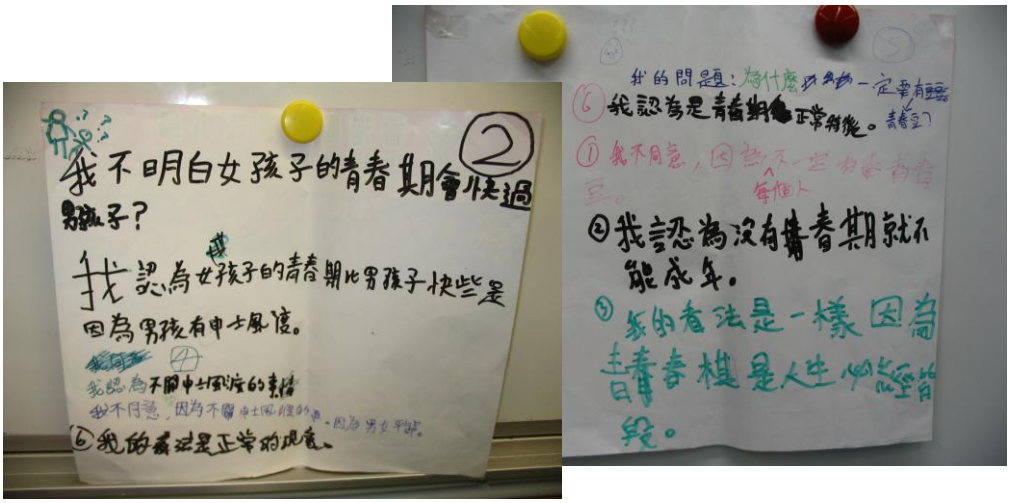
海洋面積的大小會否影響風的温度？

香港會否在多年後因全球暖化導致全球水位上升而被淹沒？

Mr. Leung (A Liberal Studies teacher from Cognitio College)
Students-generated questions on the topic Energy



Ms. Shek & Ms. Lee
(General Studies teachers from Fung Kai Innovative School)
Students-generated questions on the topic Adolescence



It is a common misconception that a good Knowledge Forum discussion starts with a well-structured question given by the teacher. This kind of discussion would easily result in unidirectional assignment-based writing with extremely limited interactions among students.

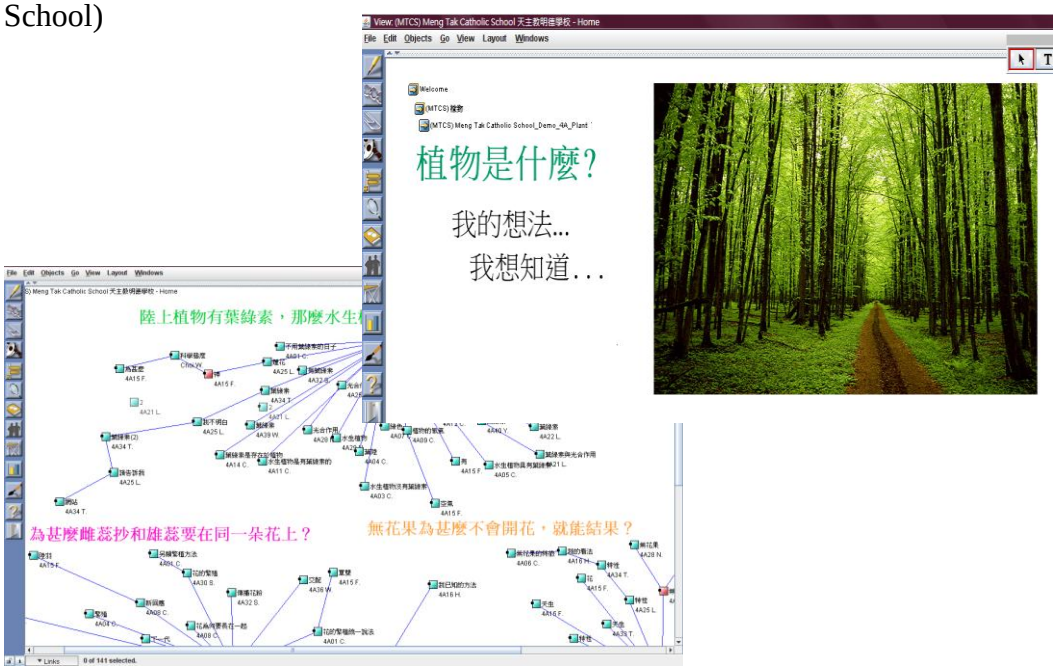
The essence of Knowledge Building is to allow students to direct their own learning. Therefore, instead of answering teacher's questions, students are to ask their own questions and try to find out the answers, thereby construct knowledge and understanding through the collaborative efforts of their KB community.

2. ***Students' questions based on metacognition***

Specific and content-based questions restrict students' independent thinking. To facilitate students' meta-cognition, broader questions such as 'What do you know about this topic?' and 'What do you want to find out more on this topic?' are more appropriate.

Mr. Leu (A Physics Teacher from C.C.C. Kei To Secondary School)

Mr. Choi & Mr. Tang (General Studies Teachers from Meng Tak Catholic School)



3. ***Students' questions based on readings***

Sometimes students can be inspired through reading of books, newspaper articles, research report, poems or other written materials (used in phase one). Of course, materials of other modes, such as video, movie, comics, sound clips etc. can also be good stimuli.

Ms. Sin (A Chinese teacher from SMKMCF Ma Ko Pan Memorial College)
Students generated questions based on a newspaper article:

News Discussion

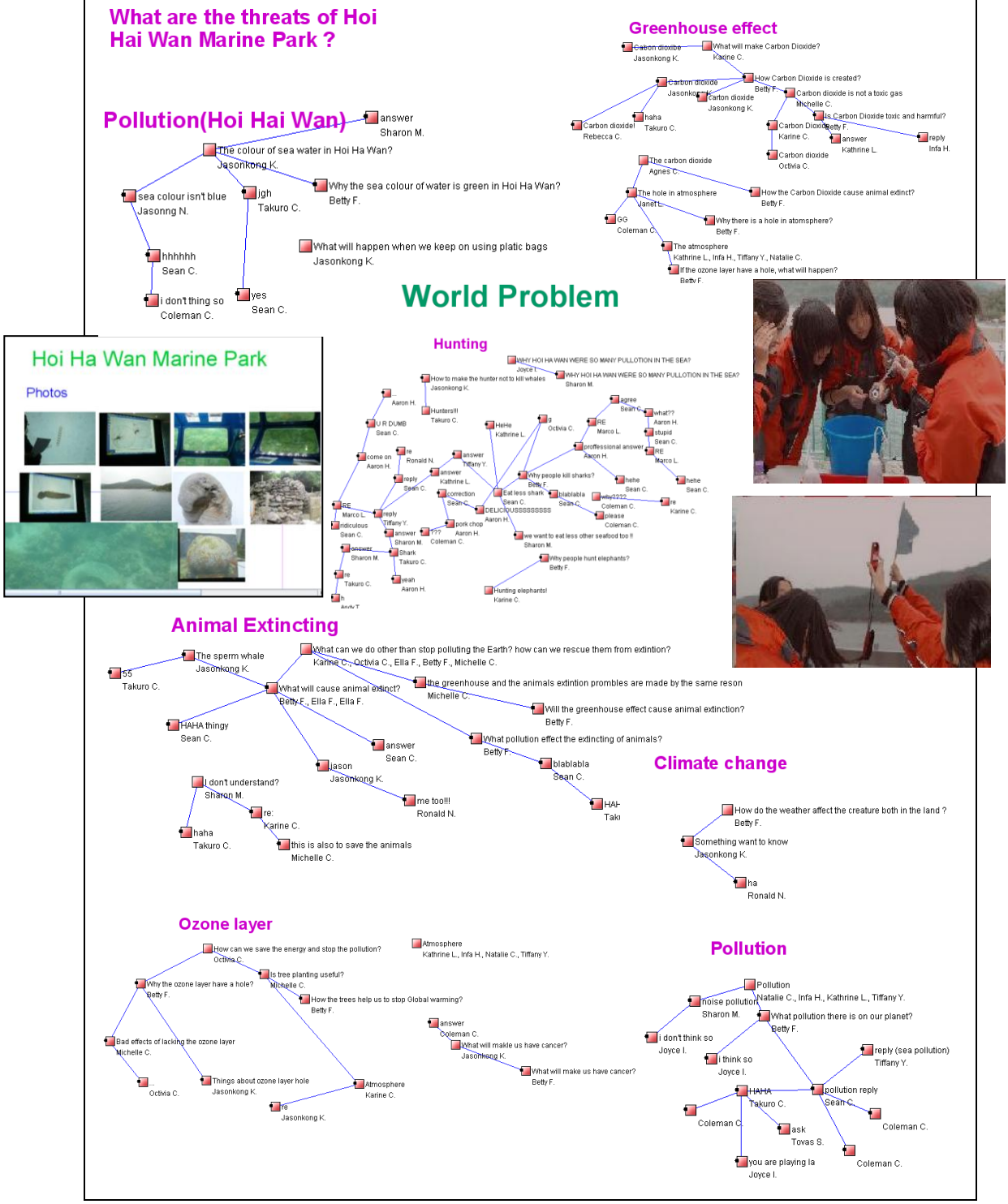
Teachers may consider doing News Discussion with students regularly (e.g. bi-weekly or monthly). In this approach, different groups of students take turns to find a newspaper article that interested them and identify key questions for discussion based on that article. After that, the group needs to act as the little teachers to present to the whole class their inquiry questions and lead the class discussion. After the lesson, the questions will be posted onto KF for further inquiry.

4. ***Students' questions based on field trip***

Firsthand experience such as experience in field trips, visits and workshops give students wonderful opportunities to discover and explore authentic problems.

Ms. Tse (A teacher from Pui Kiu College)

Students analyzed data collected from the field trip to Hoi Hai Wan and had in depth discussion on the local and global environmental problems



Tips for Encouraging and Facilitating Students' Knowledge Building on KF

1. Students' interest and incentives

a. Make sure students are interested in the discussion topic, this can be done by

- letting students decide their own discussion topic and questions
- Finding out interesting, controversial, puzzling and daily-life-related issues to introduce 'boring' topics required by the curriculum

b. Give power to the students, Minimize teachers' interference

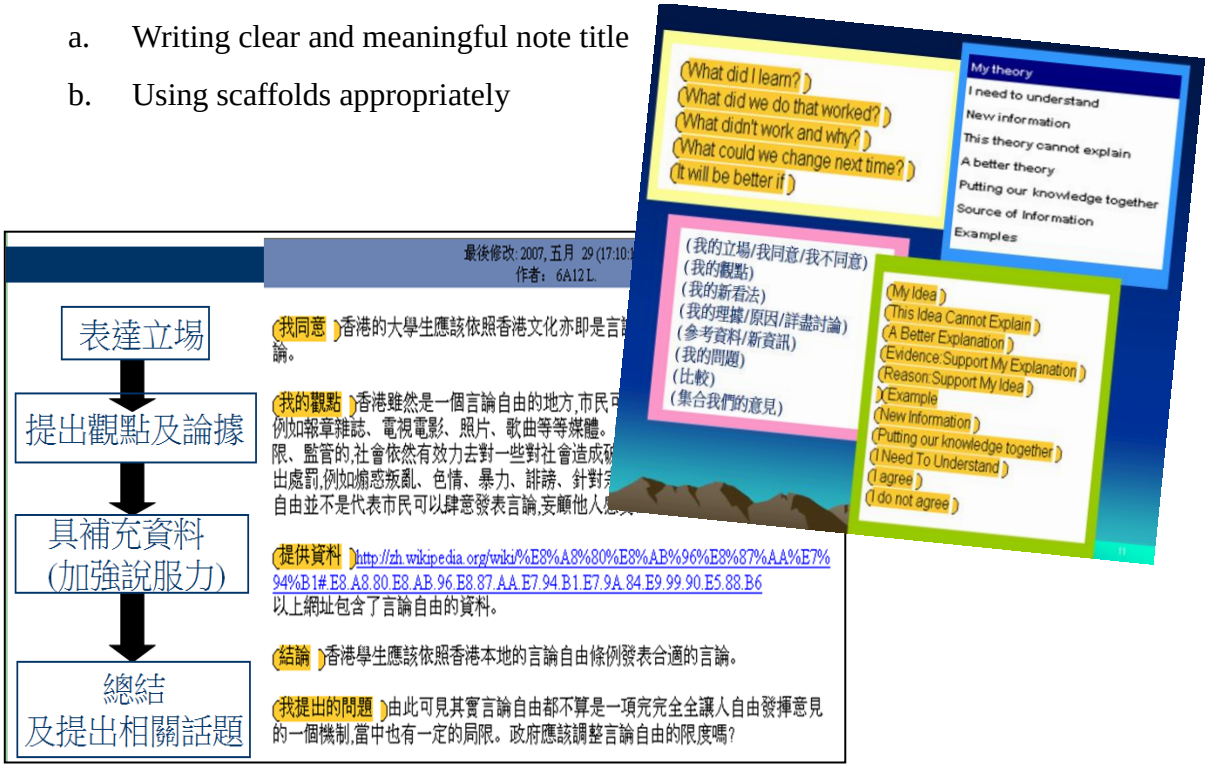
- Tolerate minor mistakes to avoid dampening students' incentive; students can learn from trial and errors
- Allow students to question against the topic for discussion and encourage them to make refinements to the topic or explore new directions for inquiry

2. KF skills

Help students to acquire the specific KF skills that support better knowledge building, they include:

a. Writing clear and meaningful note title

b. Using scaffolds appropriately



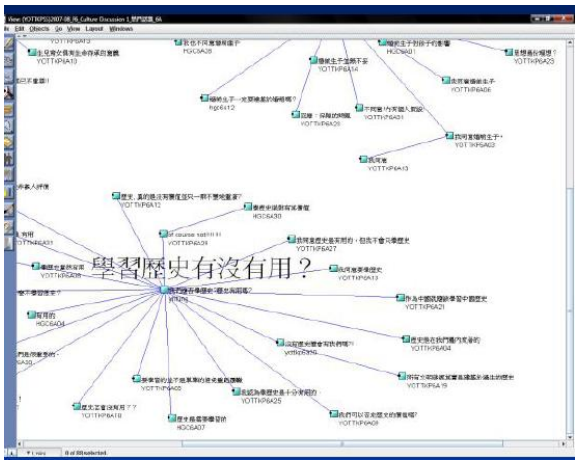
c. Adding references (to cite other students' notes, to add attachments)

d. Setting keywords, etc.

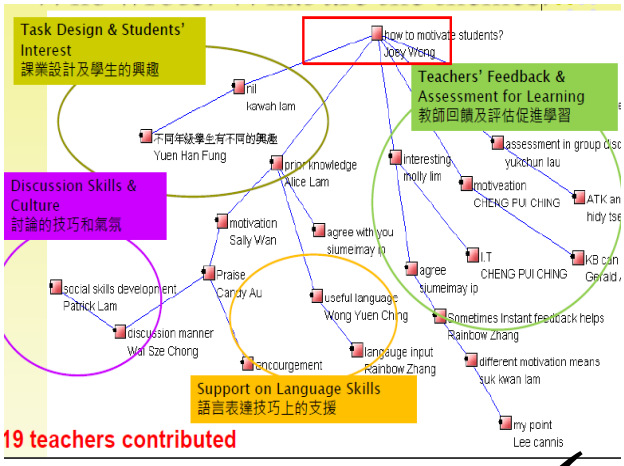
3. ***Build-on***

Encourage students to Build-on others' ideas

- Explain to students, 'Build-on is just like "Listening and talking to your friends!"'
- Remind students, 'KF is not for Q&A or assignment writings!'



Star-shaped note cluster
Students answer to a single question (asked by the teacher or one student)
Little collaboration



Note cluster with build-ons
Learners read each others' notes and build-on each others' ideas
More collaboration

4. ***Feedbacks***

In the lesson, use around 10 minutes to have brief review on KF work by

- Praising the few students who have written notes on KF for their effort and show their notes to the class and ask students to comment on the good notes
- Increasing social dynamics by inviting students to give feedbacks or make queries on the notes written and inviting note authors to respond
- Probing students to discuss whether they agree or disagree to what were said and explain their standpoints
- Challenging students with some critical questions to spark students' interest in exploring new perspectives and reflecting on their existing ideas (DO NOT give direct answers or corrections)
- Providing suggestions on useful resources which can support their ideas
- At last, remind students to post their new ideas and queries onto KF and continue their discussion

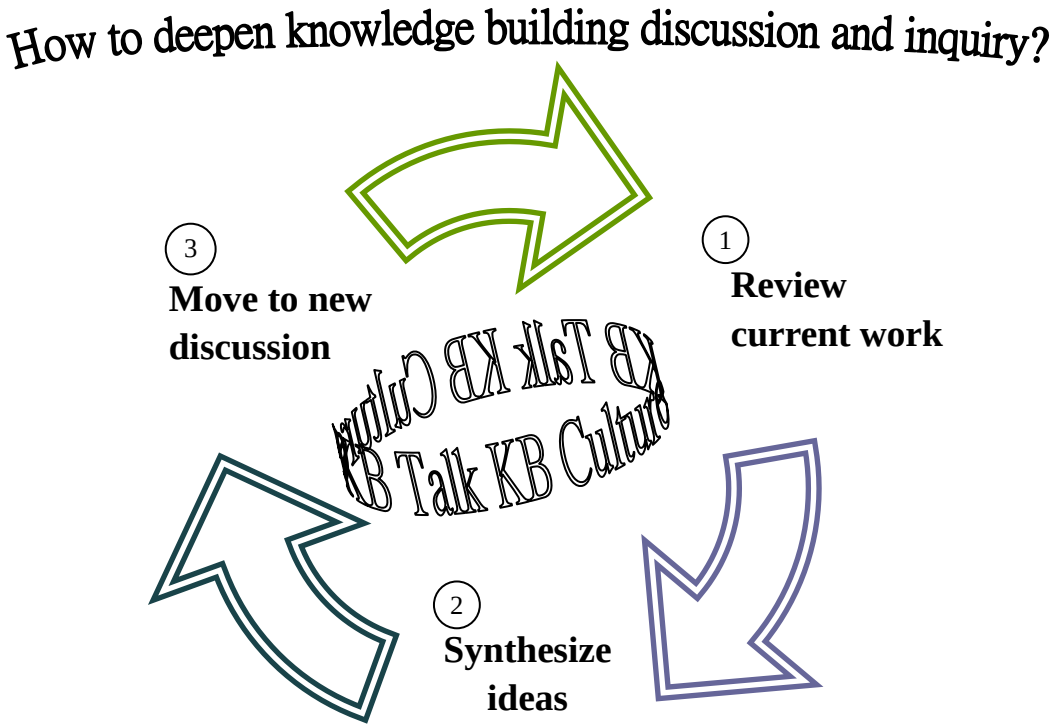
From I am right, you are right to 'rise-above' and 'improvable ideas'

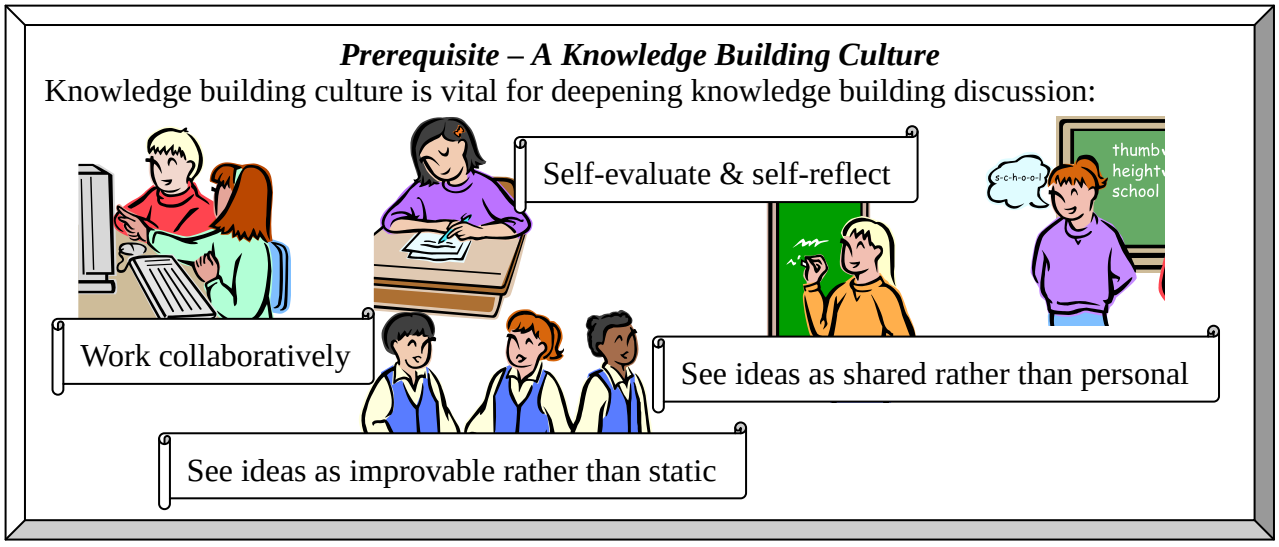
Section Outline

Prerequisite – A Knowledge Building Culture

1. ***Review Current Work***
   a. *Review their own notes or others' notes*
   b. *From individual to community progress*
2. ***Synthesize ideas***
   a. *Categorize and summarize ideas*
   b. *The use of referencing*
   c. *The use of rise-above*
   d. *View maintenance*
3. ***Move to New Discussions***
   a. *Identify notes which are worthy of further inquiry*
   b. *Copy useful notes to a new view*
   c. *What is 'Workspace'? How to use 'Workspace'?*

With proper facilitations, students would become more confident and proficient in exchanging their ideas on certain topics. However, knowledge building does not stop at this point. According to the Knowledge Building theory, "ideas" are always emergent and improvable. The goal of knowledge building is to improve the existing ideas of the learning community in order to construct new knowledge. Therefore, our next challenge in knowledge building is to deepen students' discussion and facilitate the rise-above of their ideas.





1. Review Current Work

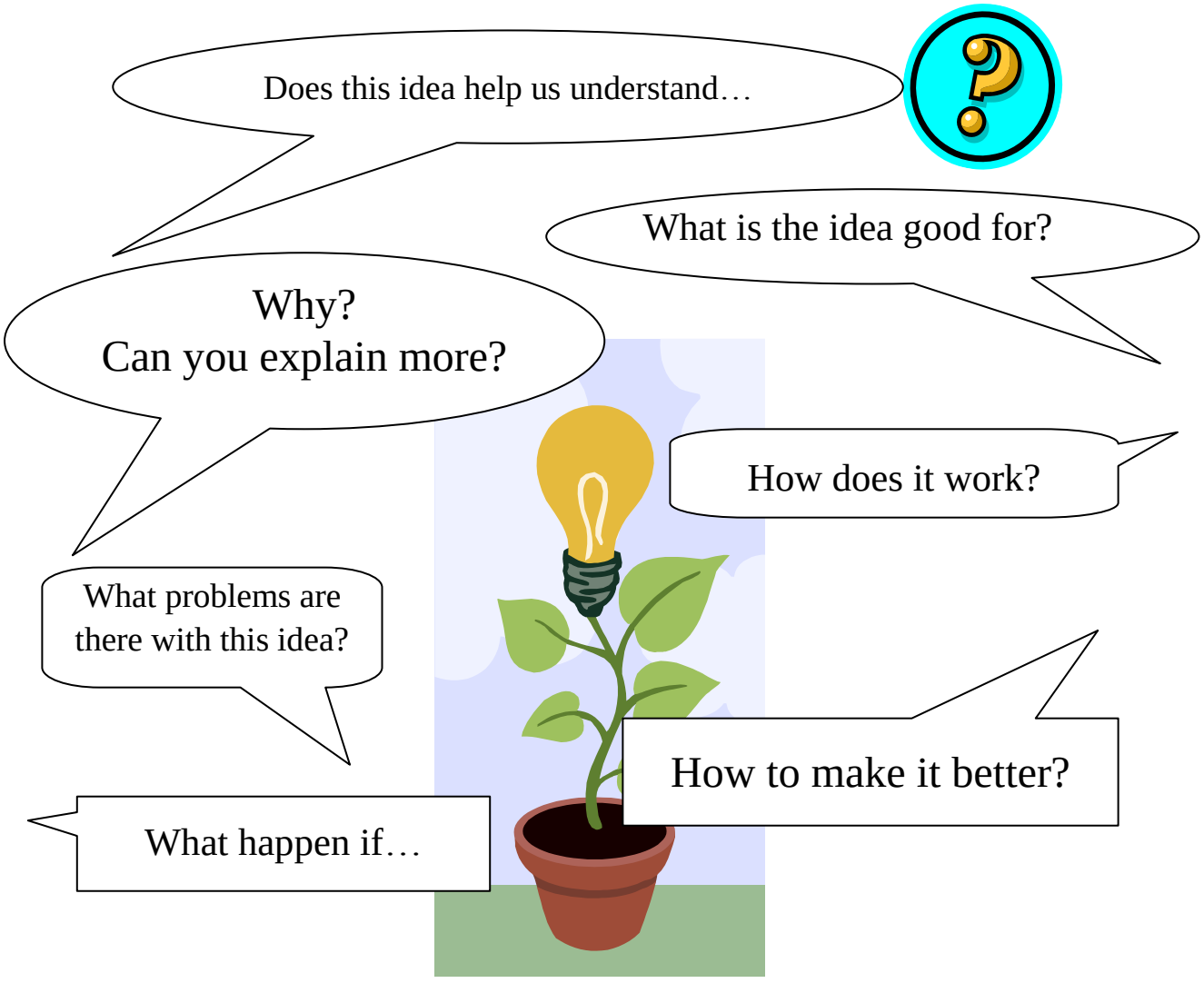
– Find out the community's ideas and raise questions about them

As discussed in the previous section, constant review on KF work during lessons can encourage and facilitate students' KF discussion. In phase three, KB talk is also an indispensible element, which guides students towards deeper inquiry.

a. <u>Review their own notes or others' notes</u>

After students have written many notes, teachers can discuss the notes with students in class. Teachers may print out the notes which contain innovative, controversial, or improvable ideas, for students to review on.

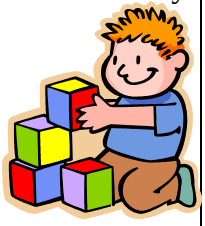
When students review each others' notes, they should learn from each other and try to find out what can be improved, by considering the following questions:



b. From individual to community progress

- Students may raise questions, provide answers, evaluate, reflect on or contribute new points of view to the existing thread of discussion.
- Teachers can also facilitate students to analyze the flow of ideas in a thread

Ms. Wong (A Liberal Studies teacher from NLSI Peace Evangelical Secondary School)



為甚麼香港有這麼多低下階層人士？

回應問題作者：3D05 HUNG PUI SHAN[2008, 十一月 05]
3D04 CHAN YUK YAN因爲貧富懸殊日趨嚴重...所以令到更多低下階層人士出現.3D05 HUNG PUI SHAN

回應問題作者：3D04 CHAN YUK YAN[2008, 十一月 04]
我同意. 因爲現在的工作都是要找一些有高學歷的人士,而且現今社會不但是追求學歷,還要著重高科技發展及講求創意,這些對沒有學歷和年老的人比較困難

回作者：3D18 TANG SUI TING[2008, 十一月 04]
我同意. 因爲很多人都不努力讀書所以學歷低找不到工作

Expressing ideas

回應作者：3D14 LUI CHEUK WING[2008, 十一月 05]
我不同意. 我認爲低下階層人士可學習一門技能,即使學歷低但只要有一技傍身也可以一番作爲的。例如可學習汽車維修,學有所成後便可成爲汽車維修員,雖然薪金不一定高,但也不至於生活貧困,可以三餐溫飽的。

回作者：3D10 LAM WING NGAI[2008, 十一月 05]
我認爲他們可以在政府應可的技能中心進修.

Questioning the comprehensiveness of the existing ideas and offer alternative idea

回應 金玉^^作者：3D04 CHAN YUK YAN[2008, 十一月 06]
但是他們一邊學習,又要有金錢去養活自己,如他們學習時,又要去打工,他們能有充足或能安排時間嗎?

回應作者：3D20 YEUNG WING LAM[2008, 十一月 05]
Wong Po Yi Wong Po Yi這是因爲他們家庭的開支只是勉強足夠使用,所以他們除了上學以外,他們就根本沒法可以學多一種技能,因此他們讀書不成,技能又沒有,所以貧窮只會一直維持下去3D20 YEUNG WING LAM

Questioning the problem with the alternative idea and give explanations

回應作者：3D22 CHAN KIN HANG[2008, 十一月 05]
因爲跨代貧窮

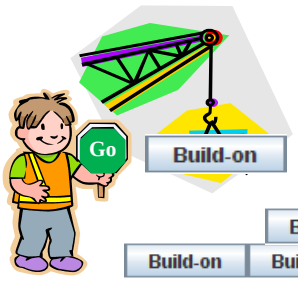
有關係嗎?作者：3D12 LI HIU UEN[2008, 十一月 05]
低下階層人士與跨代貧窮有什麼關係??

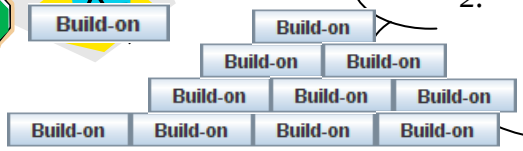
New idea and question sparked by the previous discussion

lai ming long作者：3D32 LAI MING LONG[2008, 十一月 05]
例子. 因爲以前的社會. 只有有錢人才可以讀書

回答作者：3D12 LI HIU UEN[2008, 十一月 05]
因爲他們小時候沒有足夠金錢讀書..讀書不夠..沒有學歷..所以找不到工作..變成低下階層

Deepening inquiry with the discussion of a new concept





Reflection

1. *Do you think this is a good discussion? Why?*
2. *Can you find some good inquiry threads in your database?*

2. Synthesize ideas

– Synthesize Community's Ideas & Make Reference to the State of Knowledge

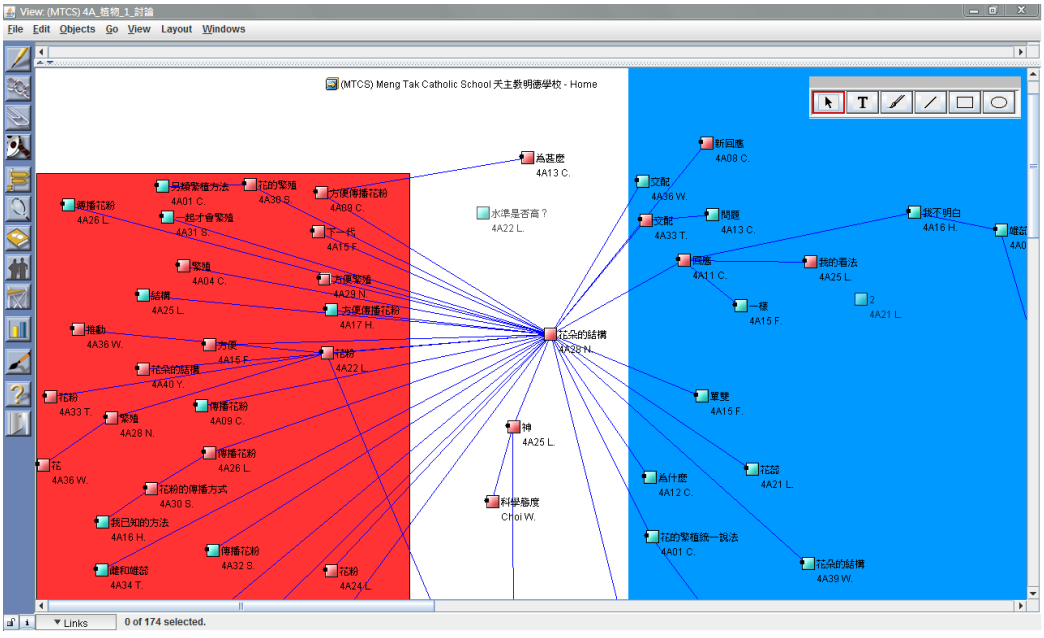
a. <u>Categorize and summarize ideas</u>

What can a teacher do after students write a lot of notes? How can the teacher help students deepen their inquiry if most notes talk about similar ideas?

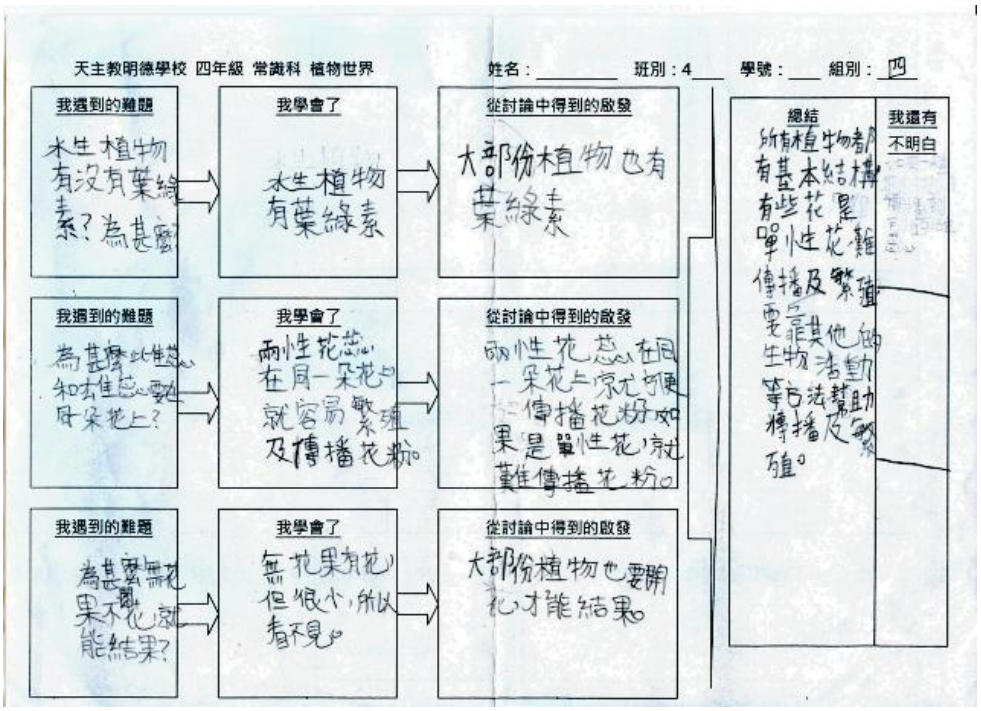
To cope with this problem, teachers can

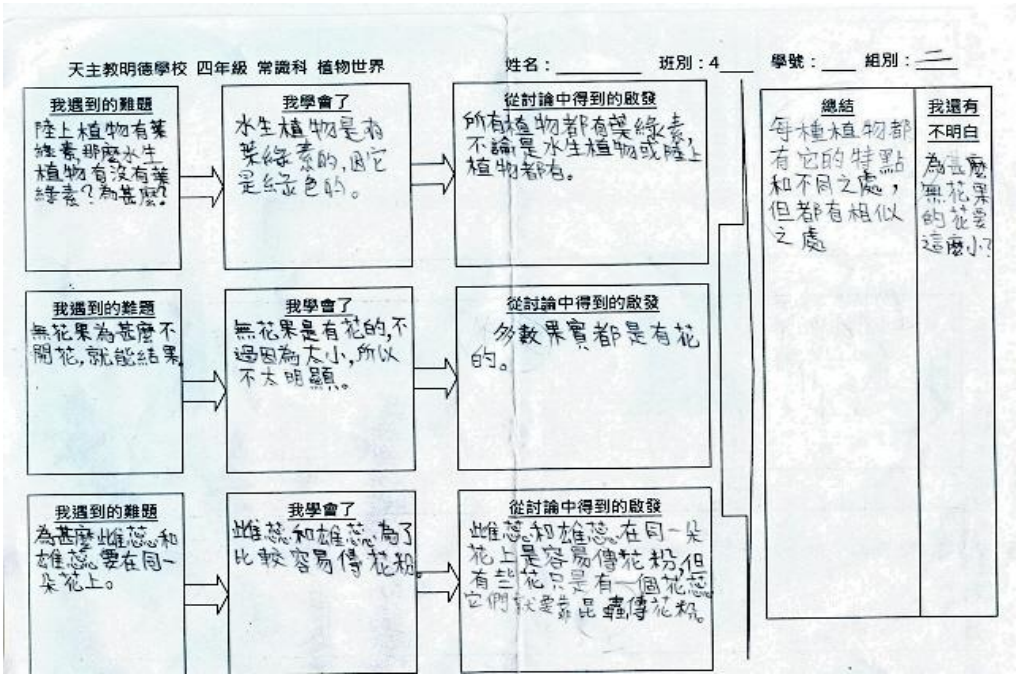
- ask students to categorize ideas, i.e. putting similar notes together
- use classroom discussion (KB talk) and worksheet and help students synthesize ideas, move forward their inquiry and ask new questions

Mr. Choi & Mr. Tang (General Studies teachers from Meng Tak Catholic School) ask their P.4 students to categorize similar ideas on the KF view into two groups.



Mr. Choi & Mr. Tang then use worksheet and KB talk to facilitate P.4 students to synthesize their ideas discussed on KF.





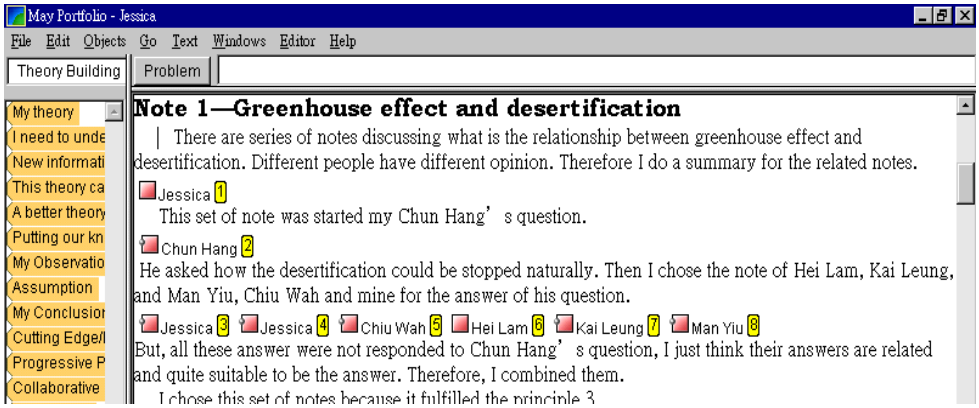
b. The use of referencing

Students usually respond to one note at a time. Can they respond to several notes at the same time? Can they synthesize different ideas and arguments and make the ideas better?

To solve this problem, students can make use of referencing, which enables students to

- respond to more than one note at a time
- cite other students' notes as references to support their own views
- use the community's existing ideas as the basis for the emergence of new ideas

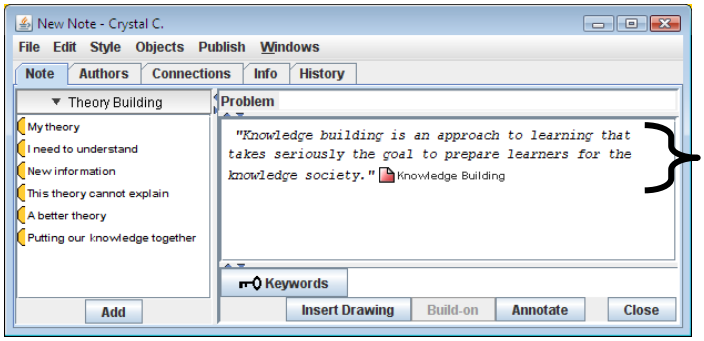
Referencing other students' notes



How to make references?

To quote part of a note:

1. Open the referenced note.
2. Copy the text you want to reference.
3. Paste the copied text into the note content box of the referencing note.
4. Click the Close button after you have finished all.



Copied text

To reference a whole note:

- Drag the note you want to make reference into the new note

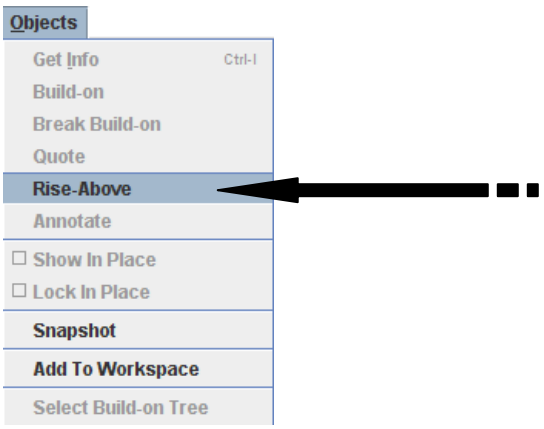
c. ***The use of rise-above***

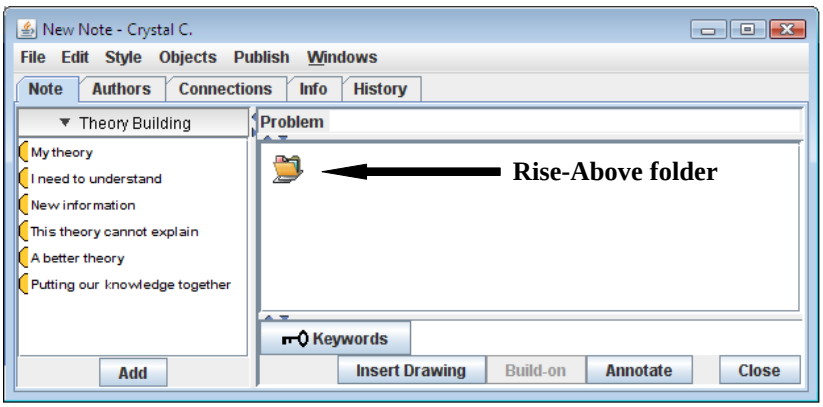
The rise-above function enables students to

- wrap up the discussion by writing a summary
- write new ideas that 'rises above' the previous thinking, hence leading to a new direction for discussion
- store the relevant notes in a collection
  - Caution: The notes in the Rise-Above folder will disappear visually from the View after you have done the rise-above and become accessible only through the new Rise-Above Note.

How to make a rise-above note?

1. First of all, select the notes that you want to do a rise above with. *(Press "Shift" and left-click mouse at the same time to select a note.)*
2. Click on the **Objects menu** and choose **Rise-Above**.





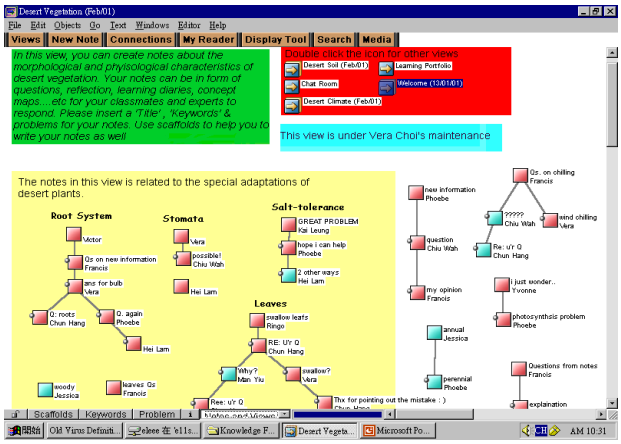
3. Input the note content like a normal note.
4. Click the Close button after you have finished all.

d. View maintenance

- Entrusting students the responsibility of view maintenance not only enhance student agency, but also help students master the skills of organizing and synthesizing ideas.
- In view maintenance, students may
  - categorize ideas and arrange relevant clusters of notes under meaningful subtitles
  - supply other relevant resources to support and stimulate discussions, e.g. they may attach reference readings, post photos and provide links to useful websites
  - write summary notes

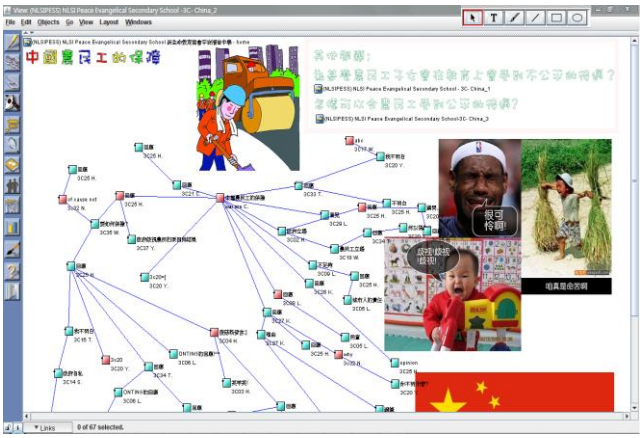
Views under students' maintenance

Example 1: F.6 georgraphy class of Mr. Lee (Raimondi College)



Views under students' maintenance

Example 2: F.3 Liberal Studies class of Ms. Chong (NLSI Peace Evangelical Secondary School))



3. Move to New Discussions
– deepen inquiry or discover new directions for discussion

After analyzing, commenting on and summarizing what have been discussed, students should move onto further discussion or new directions for discussion, in order to achieve deeper knowledge building.

a. ***Identify notes which are worthy of further inquiry***

Notes/ cluster of notes that worth further discussion are those containing:

- new ideas or concepts
- new perspectives of looking at the issue
- new questions arisen from pervious discussion

b. ***Copying useful notes to a new view***

- It is to duplicate the notes which worth further discussion, and move the duplicated copies to a new view, in which students can carry out deeper discussion
- Notes copied can also be summary notes or portfolio notes
- To copy notes to a new view, you may add the notes into the 'workspace' and then drag the notes from the 'workspace' to the new view

c. ***What is 'Workspace'?***

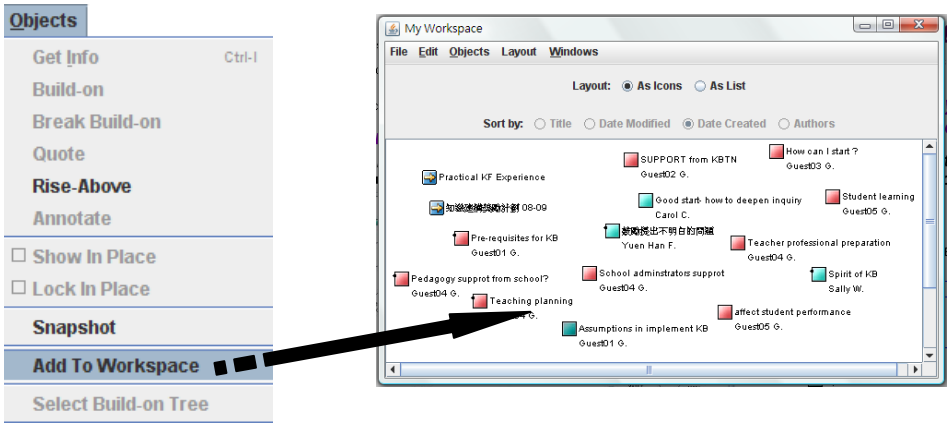
- 'Workspace' acts as a temporary storage area for collecting related notes, attachments, movies, and views from multiple sources.
- It can help you manage your resources when you are creating a reference note, or copy objects to another view from Workspace.

How to use 'Workspace'?

To add to Workspace:

1. Select the notes, views or attachments that you want to add to Workspace.

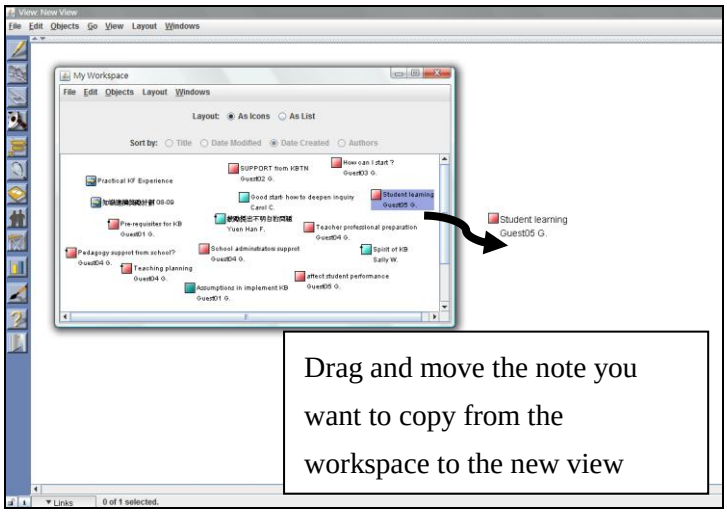
2. Click on the **Objects menu** and choose **Add to Workspace**.



3. The **Workspace window** pops up and objects will be copied to the window.

4. You can sort the order of the notes by selecting **"As List"**.

5. You can drag and move (copy) the objects from the workspace to any other notes/ views that you want.



6. Workspace can be viewed by clicking  .

From Teacher Assessment to Student Assessment
Assessment for Learning

Section Outline

Assessment for Learning

1. ***Qualitative Assessment***
   a. *The use of Analytic Toolkit (ATK)*
   b. *The use of Applets Assessment Tools*
2. ***Quantitative Assessment***
   a. *Self and peer assessment*
   b. *Learning diary*
   c. *Portfolio note*

Assessment for Learning

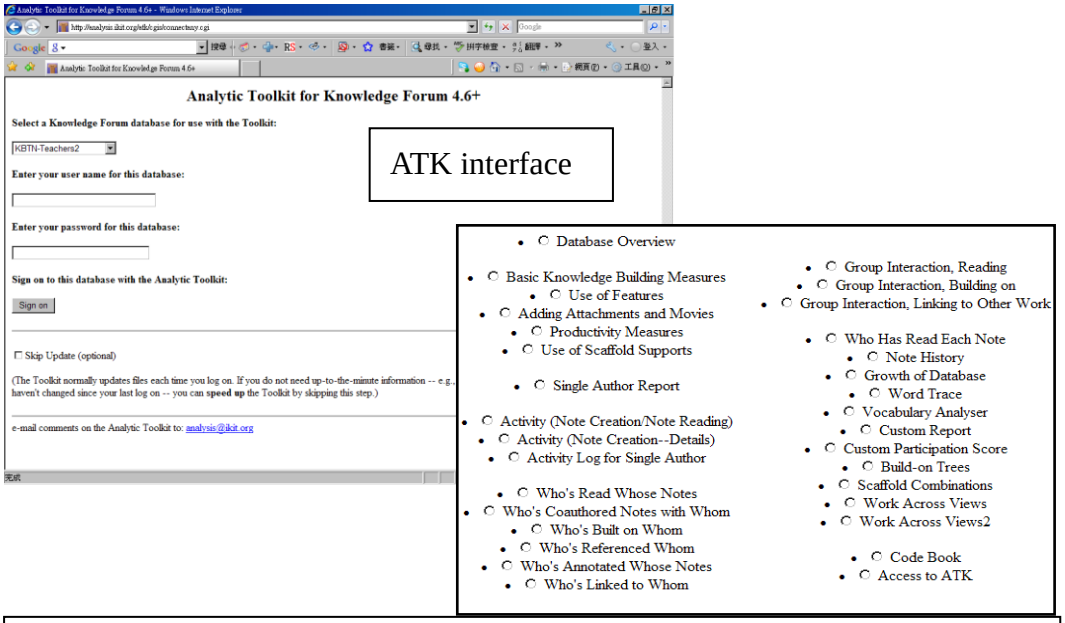
Assessment for learning is advocated as one of the important features in the education reform. Knowledge building is one of the highest forms of assessment for learning as students constantly reflect on their changing states of learning, which serve as the basis for the continuous improvement of ideas.

Although knowledge building possesses the nature of assessment for learning, teachers may still like to know about the strategies to assess knowledge building, both quantitatively and qualitatively.

1. Quantitative assessment

a. The use of the Analytic Toolkit (ATK)

- It is an online tool (available at http://analysis.ikit.org) which helps teachers generate various types of participation scores for students.
- ATK provides various kinds of quantitative measures to analyze students' performance on KF

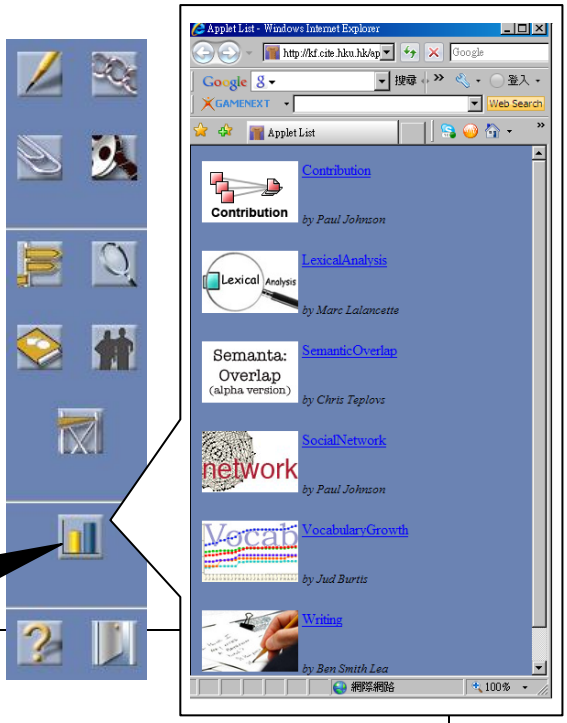


Results generated by ATK, e.g. number of notes created, number of build-ons, number of scaffold used, number of times for revising the notes etc.

	Weights for Participation Score:										
	1	1	1	1	1	1	1	1	1		
Author Name	# notes created	# build-ons made	# refs created	# supports used	# keywords used	# words per note*	% of notes linked	% of notes w KWs	% of notes read	# revi-sions	PARTICIPATION SCORE
code161	8 (16%)	8 (17%)	0 (0%)	0 (0%)	4 (2%)	50 (48%)	100% (100%)	50% (50%)	37% (38%)	3 (18%)	5
code173	18 (35%)	18 (38%)	0 (0%)	16 (13%)	65 (26%)	53 (51%)	100% (100%)	94% (94%)	53% (53%)	9 (53%)	27
code222	10 (20%)	10 (21%)	0 (0%)	7 (6%)	21 (8%)	46 (44%)	100% (100%)	70% (70%)	87% (87%)	6 (35%)	19
code225	15 (29%)	14 (29%)	3 (15%)	33 (27%)	47 (19%)	93 (89%)	93% (93%)	93% (93%)	43% (43%)	13 (76%)	32
code413	51 (100%)	48 (100%)	20 (100%)	124 (100%)	254 (100%)	104 (100%)	96% (96%)	98% (98%)	65% (66%)	6 (35%)	100
code429	14 (27%)	12 (25%)	0 (0%)	19 (15%)	63 (25%)	59 (57%)	86% (86%)	93% (93%)	28% (28%)	17 (100%)	19
code467	8 (16%)	8 (17%)	0 (0%)	8 (6%)	28 (11%)	55 (53%)	100% (100%)	88% (88%)	9% (9%)	4 (24%)	10
code480	2 (4%)	2 (4%)	0 (0%)	2 (2%)	3 (1%)	32 (31%)	100% (100%)	100% (100%)	2% (2%)	0 (0%)	1
MEAN	12.4	11.6	1.4	15.7	44.4	58.2	94.2%	87.7%	41.4%	5.8	20.2
SD	11.02	10.41	4.85	29.22	57.75	19.38	9.39%	15.22%	32.06%	4.85	22.99
MEDIAN	10	9	0	7.5	34	54	100%	94%	33%	4	15
EVENNESS	0.8942	0.8927	0.1397	0.6488	0.7999	0.9811	0.9981	0.9941	0.8827	0.8645	0.8218

b. The use of Applets Assessment Tools

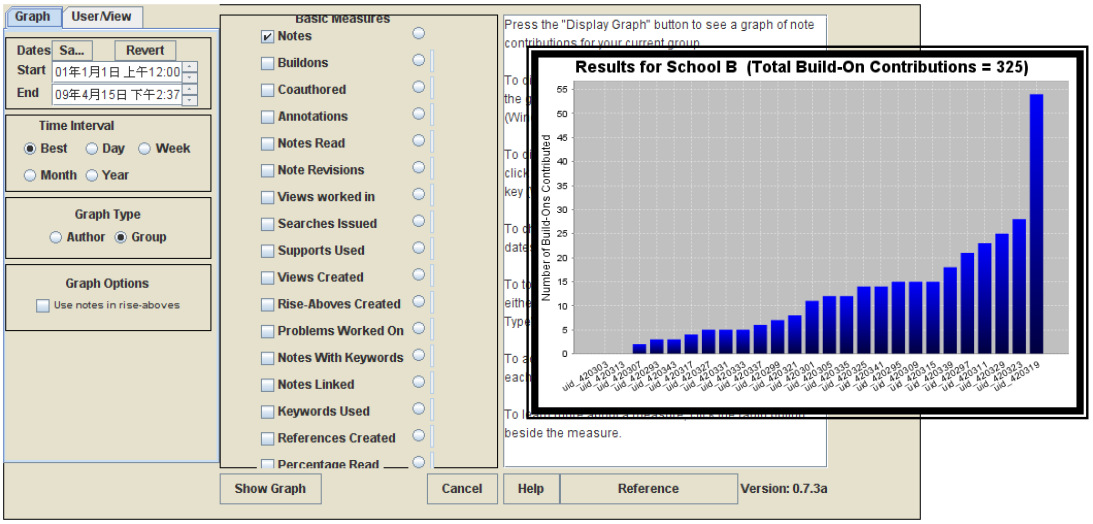
- Applets assessment tools are directly available in KF
- They help to measure individual students' performance in KF and also the overall performance of the learning community
- Two most frequently used tools are 'Contribution' and 'Social network'.
- 'Vocabulary Growth' is useful especially for language subjects.



Applets Assessment Tools

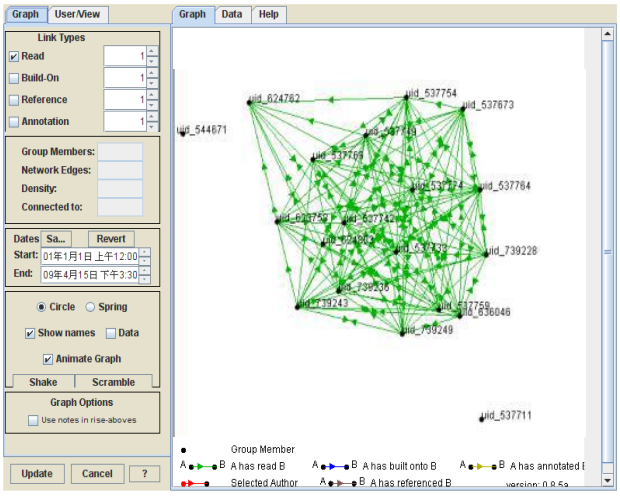
(1) "Contribution" assessment

- It helps you find out how has each student performed, as well as the overall performance of the learning community.



(2) "Social Network" assessment

- It helps you visualize the interactions between students in the network.
- The density score can also reflect students' performance.

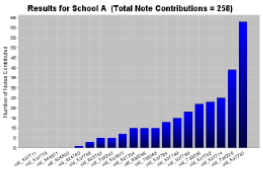


How to interpret the results obtained from quantitative assessment?

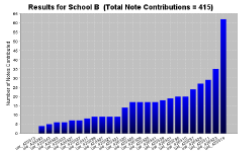
In general, a better KF database can be indicated by…

(1) The higher **actual number of contributions** e.g. total number of notes created, total number of build-ons, number of notes read etc.

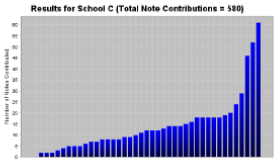
School A (N:20)
258 notes



School B (N:26)
415 notes

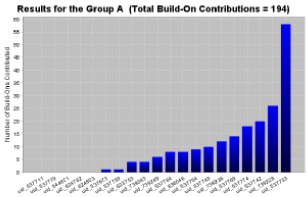


School C (N:40)
580 notes

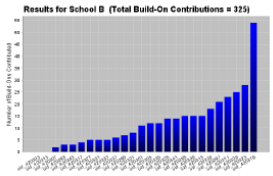


Higher number of notes created

School A (N:20)
194 notes (58%)

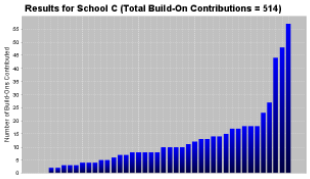


School B (N:26)
325 notes (78%)



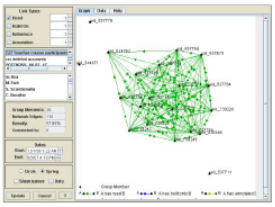
Higher number of build-ons

School C (N:40)
514 notes (89%)

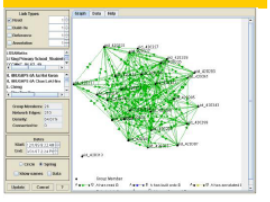


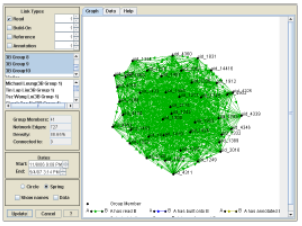
(2) The higher **density scores** in different dimensions e.g. density of build-ons, density of notes read, density of referencing etc.

School A (N:20)
Density: 57.89%



School B (N:26)
Density:64.61%





School C (N:40)
Density:88.65%

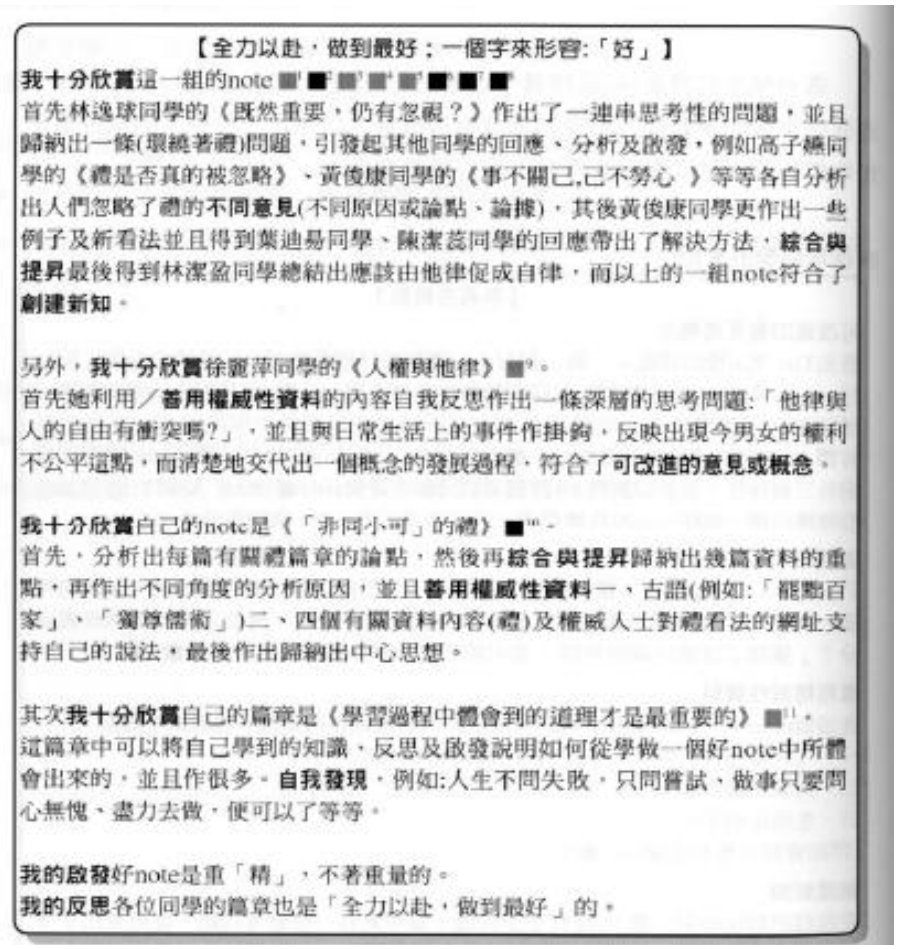
Higher density of notes read

2. Qualitative assessment

a. Self and Peer assessment

Self assessment and peer assessment are powerful qualitative assessment methods.

A student chooses the best note contributed by his group, his mostly appreciated note written by one of his classmate and his own best note. He gives detail explanation on his choices.



【全力以赴，做到最好；一個字來形容:「好」】

我十分欣賞這一組的note ■ ■ ■ ■ ■ ■ ■ ■ ■

首先林逸球同學的《既然重要，仍有忽視？》作出了一連串思考性的問題，並且歸納出一條(環繞著禮)問題，引發起其他同學的回應、分析及啟發，例如高子橋同學的《禮是否真的被忽略》、黃俊康同學的《事不關己,己不勞心 》等等各自分析出人們忽略了禮的**不同意見**(不同原因或論點、論據)，其後黃俊康同學更作出一些例子及新看法並且得到葉迪易同學、陳潔蕊同學的回應帶出了解決方法，**綜合與提昇**最後得到林潔盈同學總結出應該由他律促成自律，而以上的一組note符合了**創建新知**。

另外，**我十分欣賞**徐麗萍同學的《人權與他律》■。

首先她利用／**善用權威性資料**的內容自我反思作出一條深層的思考問題:「他律與人的自由有衝突嗎?」，並且與日常生活上的事件作掛鉤，反映出現今男女的權利不公平這點，而清楚地交代出一個概念的發展過程，符合了**可改進的意見或概念**。

我十分欣賞自己的note是《「非同小可」的禮》■。

首先，分析出每篇有關禮篇章的論點，然後再**綜合與提昇**歸納出幾篇資料的重點，再作出不同角度的分析原因，並且**善用權威性資料**一、古語(例如:「罷黜百家」、「獨尊儒術」)二、四個有關資料內容(禮)及權威人士對禮看法的網址支持自己的說法，最後作出歸納出中心思想。

其次**我十分欣賞**自己的篇章是《學習過程中體會到的道理才是最重要的》■。

這篇章中可以將自己學到的知識，反思及啟發說明如何從學做一個好note中所體會出來的，並且作很多。**自我發現**，例如:人生不問失敗，只問嘗試，做事只要問心無愧、盡力去做，便可以了等等。

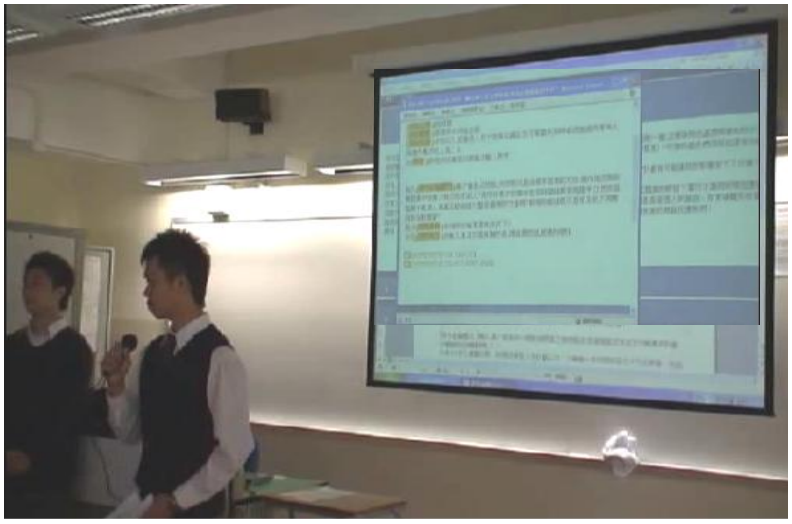
我的啟發好note是重「精」，不著重量的。

我的反思各位同學的篇章也是「全力以赴，做到最好」的。

Adopted from

馮婉嫻、區如冰、羅燕琴、陳桂涓主編。(2004年)。*《中文科課程新嘗試 – 高思維能力的教學實踐》*。香港：香港教育統籌局。

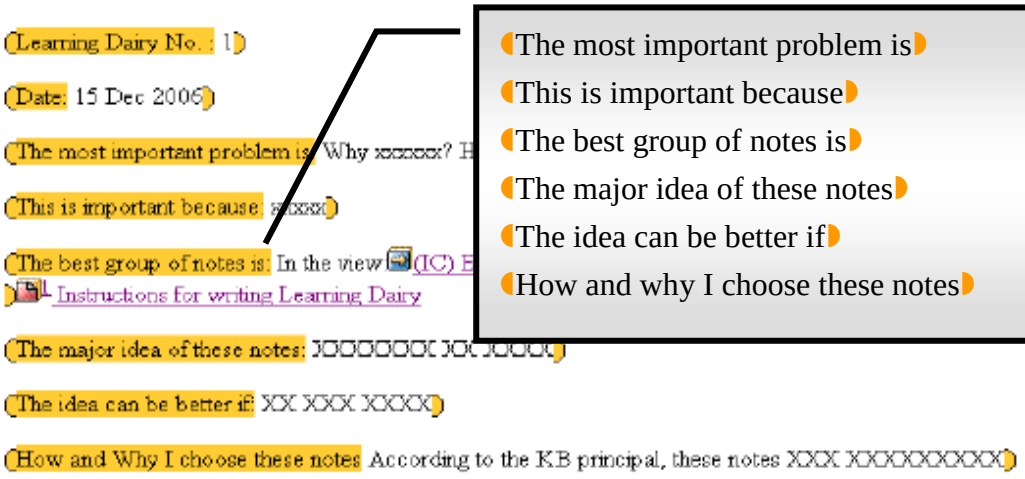
- Peer assessment is particularly effective for
  - Increasing students' motivation to discuss and learn
  - Helping students review and learn from the works of other
  - Helping students reflect more holistically on the collaborative knowledge building process of the whole community
- Teachers may ask students to work in groups to
  - Summarize the KF discussion done by another group
  - Evaluate the quality of the discussion on various dimensions (e.g. quality of the ideas proposed, scaffolds used, questions raised, arguments used, new ideas generated, reference cited etc.)
  - Provide suggestions for improvement
  - Present the above in class



b. Learning diary

- Students write notes that records thoughts and insights about students' own learning experience
- It encourages students to:
  - review and consolidate learning,
  - evaluate performance and gain insight of their own strengths and weaknesses as learners
  - plan future learning (and overcoming learning difficulties) based on past learning experience.
  - take charge of their own learning, and to develop into independent life-long learners.
- Teachers may provide scaffolds, rubrics and guidelines to facilitate student's reflective journal writing

An example of a set of scaffolds which facilitate the writing of Learning Dairy (Ms. Tse, a science teacher from Pui Kiu College)

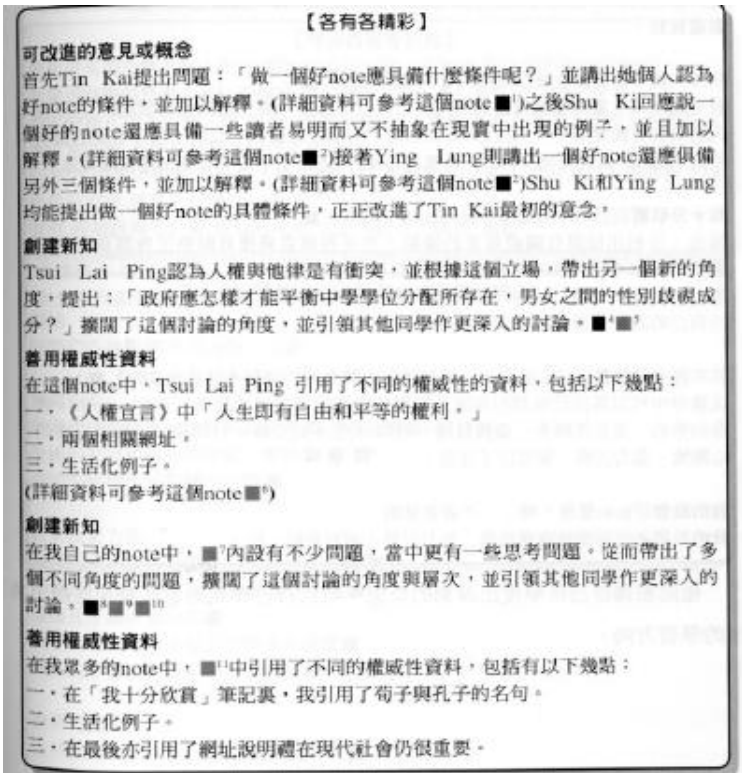


- Teachers may provide some generic prompting questions, such as
  - What have you learnt about topic 'X'?
  - Why the referenced notes are important to your understanding of topic 'X'?
- These generic questions provide students the greatest freedom to ponder upon things that had the greatest personal significance

c. ***Portfolio note***

- By writing summary notes/ portfolio notes, students can
  - analyze the inter-relatedness of the community's ideas
  - reflect on the knowledge building process that the learning community have gone through
- Teachers may
  - use classroom KB talk to facilitate students' reflection on their own inquiry process
  - let students discuss on the criteria for good notes and good discussion
  - ask each student to write a portfolio note to reflect on the discussion and their own learning,
  - or assign seed students to be responsible for writing summary notes for different parts of the discussion (e.g. different phases, different subtopics)
- Referencing, rise-above note and workspace are all useful aids which help the writing of summary/portfolio notes

After discussion in class and on KF, student can develop understanding of what is a good note and good discussion:



【各有各精彩】

可改進的意見或概念

首先Tin Kai提出問題：「做一個好note應具備什麼條件呢？」並講出她個人認為好note的條件，並加以解釋。(詳細資料可參考這個note■[1])之後Shu Ki回應說一個好的note還應具備一些讀者易明而又不抽象在現實中出現的例子，並且加以解釋。(詳細資料可參考這個note■[2])接著Ying Lung則講出一個好note還應俱備另外三個條件，並加以解釋。(詳細資料可參考這個note■[3])Shu Ki和Ying Lung均能提出做一個好note的具體條件，正正改進了Tin Kai最初的意念。

創建新知

Tsui Lai Ping認為人權與他律是有衝突，並根據這個立場，帶出另一個新的角度，提出：「政府應怎樣才能平衡中學學位分配所存在，男女之間的性別歧視成分？」擴闊了這個討論的角度，並引領其他同學作更深入的討論。■[4]■[5]

善用權威性資料

在這個note中，Tsui Lai Ping 引用了不同的權威性的資料，包括以下幾點：
一，《人權宣言》中「人生即有自由和平等的權利，」
二，兩個相關網址，
三，生活化例子。
(詳細資料可參考這個note■[6])

創建新知

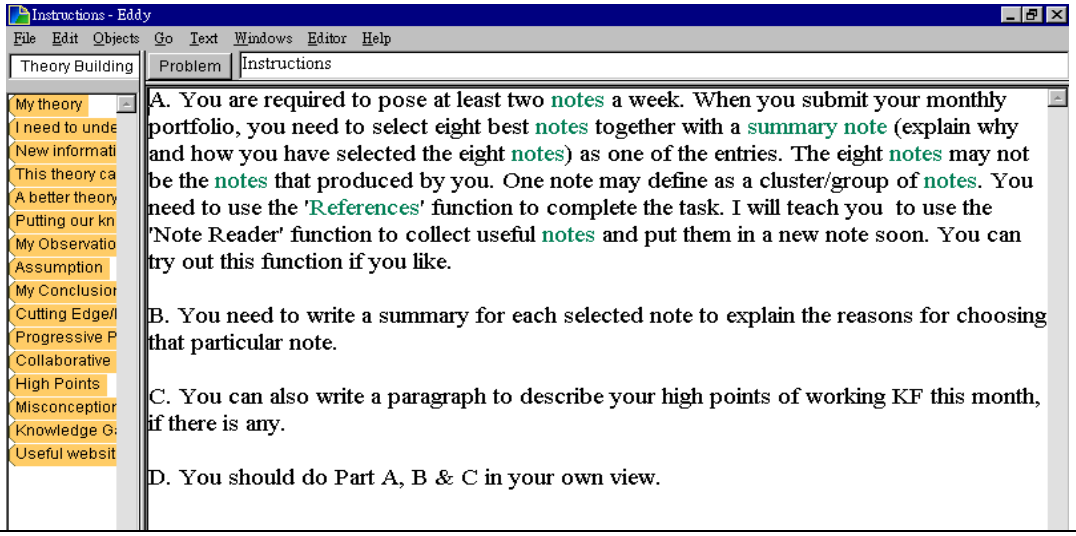
在我自己的note中，■[7]內設有不少問題，當中更有一些思考問題，從而帶出了多個不同角度的問題，擴闊了這個討論的角度與層次，並引領其他同學作更深入的討論。■[8]■[9]■[10]

善用權威性資料

在我眾多的note中，■[11]中引用了不同的權威性資料，包括有以下幾點：
一，在「我十分欣賞」筆記裏，我引用了荀子與孔子的名句。
二，生活化例子。
三，在最後亦引用了網址說明禮在現代社會仍很重要。

Adopted from
馮婉嫻、區如冰、羅燕琴、陳桂涓主編。(2004 年)。*《中文科課程新嘗試 – 高思維能力的教學實踐》*。香港：香港教育統籌局。

An example of teacher's instruction on portfolio writing



A sample worksheet teacher used to facilitate students' portfolio writing in Chinese subject (Ms. Au & Ms. Fung, Chinese teachers from Yan Oi Tong Tin Ka Ping Secondary School)

札記學習總結

1. 這個單元，我共寫了_____篇札記，他們分別是：

2. 我何以選擇閱讀這些篇章來完成札記？

3. 我最喜歡的篇章是_____因為：

4. 在閱讀這些篇章的過程中，當我遇到困難時，我會：

5. 我認為札記可加插些甚麼形式將令其更生動有趣：

6. 我對自己的札記的滿意度：(請打圈)
   * * * * *（以五個為最佳）
7. 老師對我的札記的滿意度：(請打圈)
   * * * * *（以五個為最佳）

Appendix

How to run ATK?

To run ATK, please do the followings:

1. Enter link: a. OSIE: http://analysis.ikit.org/→Choose Analytic Toolkit (ATK)
   b. CITE: http://cteplovs.cite.hku.hk/atkconnect.html
2. Enter URL: http://kf48.cite.hku.hk:8084
   →click "Submit"
3. Select the database, enter your user name and password, click "Sign on"
4. Choose the type of report you want (can try "Basic Knowledge Building Measures" first), click "Submit".
5. Choose the "group", and then the "views" you want.
   (To change the coding back to Chinese, please do the following: (top left tool bars) View → Character Encoding / Encoding → (More) →Unicode (UTF-8);
6. Click "submit".

To save ATK output:

I. Save in excel
   1. Click "text version"
   2. Select and copy all data (Ctrl + A & Ctrl + C)
   3. Open a Microsoft excel files, right click A1 box → paste special → Unicode Text , click "OK", then you'll have the data in a normal table format.
      (Beware to widen the A column in case the students' names are too long to be shown fully before printing)

II. Save as pdf

III. Save as a note in the database
   1. Choose the view you want to save the ATK output
   2. Click "save as note"

References

"Knowledge Building On-line Teacher's Course":

http://lcp.cite.hku.hk/resources/KBSN/Q1/default.html

KBTN resources web:

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

馮婉嫻、區如冰、羅燕琴、陳桂涓主編（2004 年）。*《中文科課程新嘗 –高思維能力的教學實踐》*。香港：香港教育統籌局。

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