

ePortfolio Building through Student-Centered Project Work in Learning Communities



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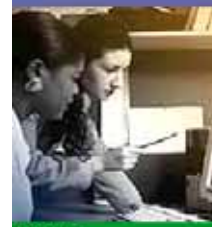


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Outlines



Features

Community Learning
Knowledge Construction
Project Building
Problem Solving
Idea Exploration
Constructive Learning
Multimedia Discussion
Collaborative Learning
Project Management
Knowledge Management
Chinese Language Support

- What is Knowledge Community (KC)?
- What is Project Learning?
- Current Practices in Project Learning
- Framework of Project Learning
- Pedagogical Framework of KC
 - Overview, Writing a Note
 - Thinking Types & Scaffolds
 - Key Words, Summary
 - Facilitation, Measure Learning Outcomes
 - Collaboration Model, Management Tools
 - Project Summary

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What is Knowledge Community (KC)?

- KC: A Web-based collaboration tool that uses Computer Assisted Intentional Learning Environment (CSILE) for knowledge Construction
- Pedagogical R&D since 2000
- More than 60 schools (Primary 、 Secondary 、 University) in Hong Kong and Singapore use KC
- More than 5,000 students, 200 teachers, 10 faculty members have used KC
- Topics include:

- Why are there twins?
- How to build a company?
- Life of Don Bosco
- Chinese Culture: 24 seasons (中國文化之二+四節氣)
- Air Pollution in HK
- Essay Writing for Primary Students
- Multimedia Anchored Instruction



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What is Knowledge Community (KC)?

Usage of KC:

- Project learning
- Problem-based learning
- Thesis supervision
- Research on online collaborative learning
- E-Mentoring

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What is Knowledge Community (KC)?

Important Projects / Results

1. Learning Community: Changing Culture in Primary School), 2000-2001

6 schools, 1200 students, 40 teachers in Hong Kong

2. 3-I Project Learning (Interdisciplinary, Interschool, Internationally)

(<http://www.3iproject.net>), 2003-2004

4 schools, 800 students, 20 teachers in Hong Kong

3. Student-Centered Project Work (Singapore)

(<http://eduweb.nie.edu.sg/projects/sclearn>), 2002 - 2005

36 schools, 3000 students, 90 teachers in Singapore

→ Let's see how KC is used in Project learning

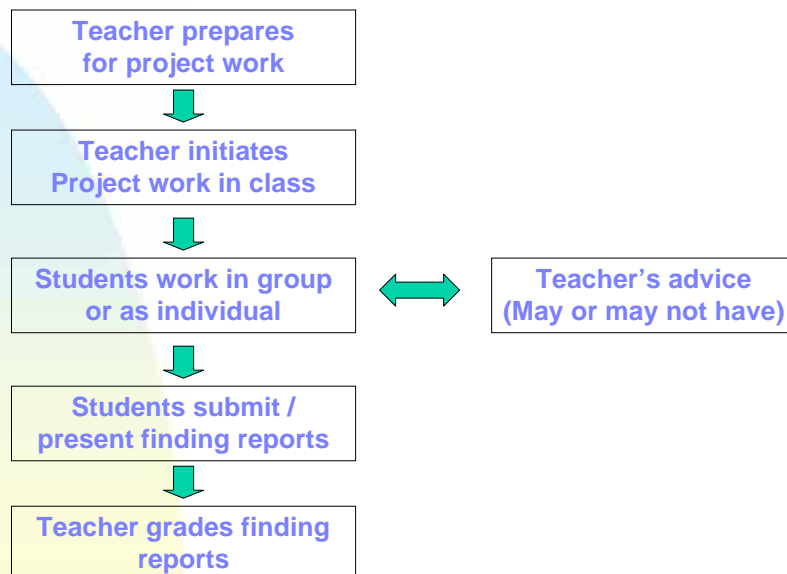
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What is Project Learning?

- important learning process recognized by educators
- break away from the compartmentalization of knowledge and skills
- Interdisciplinary (跨學科): cut across subjects
- interconnectedness of students' learning
- collaboratively, to think critically, creatively and independently and to communicate their findings
- an authentic form of learning
- prepares students for demands of workplace

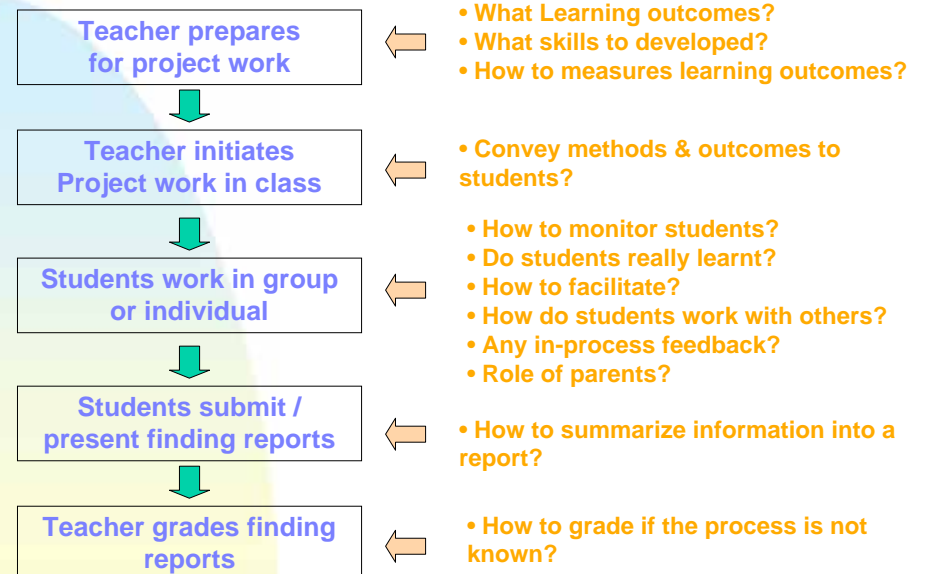
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Current Practice in Project Learning



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Issues of Current Project Learning?



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Issues of Current Project Learning?

Other issues

- What skills / training do teachers need?
- How do students know they are learning the correct things?
- How to integrate IT into project learning?
- Besides individual and group project, any other collaboration model? (E.g. overseas collaboration)
- How to manage project resources?

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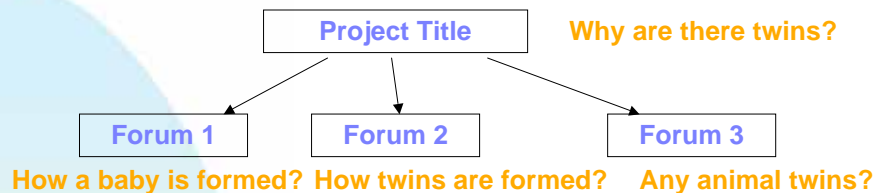
Framework of Project Learning

Domain	Learning Outcomes	Skills developed
Knowledge Application	<ul style="list-style-type: none"> • Search, filter, categorize, digest data • See relevance & interconnectedness • Apply & transfer knowledge • Understanding, confirming 	<ul style="list-style-type: none"> • Exploration • Investigation • Analysis & Creativity • Perception • Application
Communication	<ul style="list-style-type: none"> • Communicate knowledge & ideas 	<ul style="list-style-type: none"> • Sharing, listening • Presenting
Collaboration	<ul style="list-style-type: none"> • Work with other members 	<ul style="list-style-type: none"> • Discussion • Working on other's idea • Helping others
Independent Learning	<ul style="list-style-type: none"> • Plan & monitor his/her own work • Know when to seek help 	<ul style="list-style-type: none"> • Planning & management • Self motivation

[Source: Singapore MOE, 1999]

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Pedagogical Framework of KC: Overview



- A Forum represents a key area of the project
- Notes are contributed by students & teachers in every forum
- Every note has a title, a Thinking Type, and many scaffolds

[A Theory] I think we need 2 things by Pak Yin 10/9/2002 9:04:28 PM

[Evidence] I think we need 2 things: *Sperm* and *ovum* [Evidence/] but I do not know how!

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Pedagogical Framework of KC: Overview

Example of project & Forums

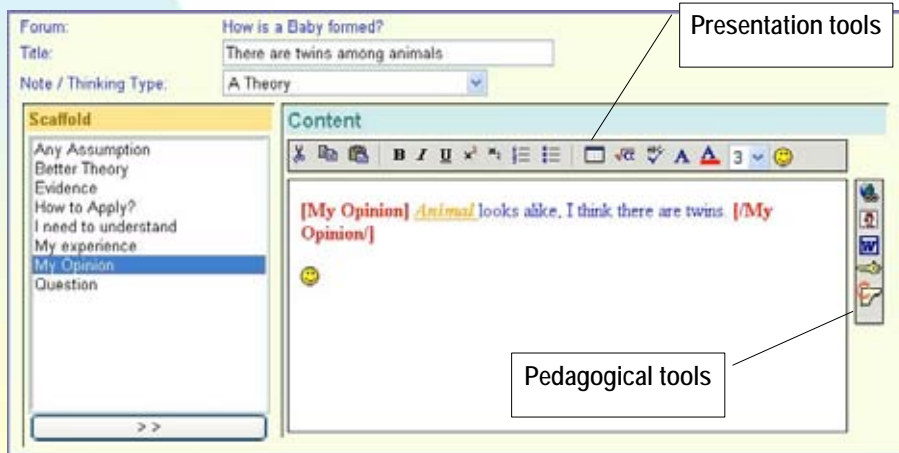
Forum	0	7	6	4	1	9/10/2002
How is a Baby formed?	8	7	6	4	1	9/10/2002
What are twins?	14	9	5	1	0	9/10/2002
How do Twins form?	1	1	1	2	0	9/10/2002
Examples of Twins	0	0	0	0	0	9/10/2002

- Crafting of meaningful forums can be done together with students using tools for mind or concept map

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Pedagogical Framework of KC: Writing a Note (筆記)

- Note is an area for student to express their findings, idea etc
- Must specify **Thinking Type** with option for **Scaffolds**
- Presentation tools: Copy, Cut & Paste, Insert table, font color etc
- Pedagogical tools: Insert picture, label key word, cross-reference, Document, hyperlink.



Demonstration on KC

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Pedagogical Framework of KC: Thinking Types & Scaffolds

Thinking Type & Scaffold are different for different project nature.

Topic	Thinking Type	Scaffold
Why are there twins?	A Theory	Key Points Author How to apply Source
How to appreciate Music?	A sense of feel	Excitement Relaxation Personal touch Enjoyment
How to build a bridge?	A Tool	Purpose How to operate Training needed Effectiveness

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Pedagogical Framework of KC: Thinking Types & Scaffolds

Thinking Types & Scaffolds guide students to learn and express in a disciplined way.

Notes

[A Theory] I think we need 2 things by Pak Yin 10/9/2002 9:04:28 PM

[Evidence] I think we need 2 things: Sperm and ovum [/Evidence/] but I do not know how!

- Thinking Type represents main thought of a note
- Scaffolds further define the Thinking Type

• Example:

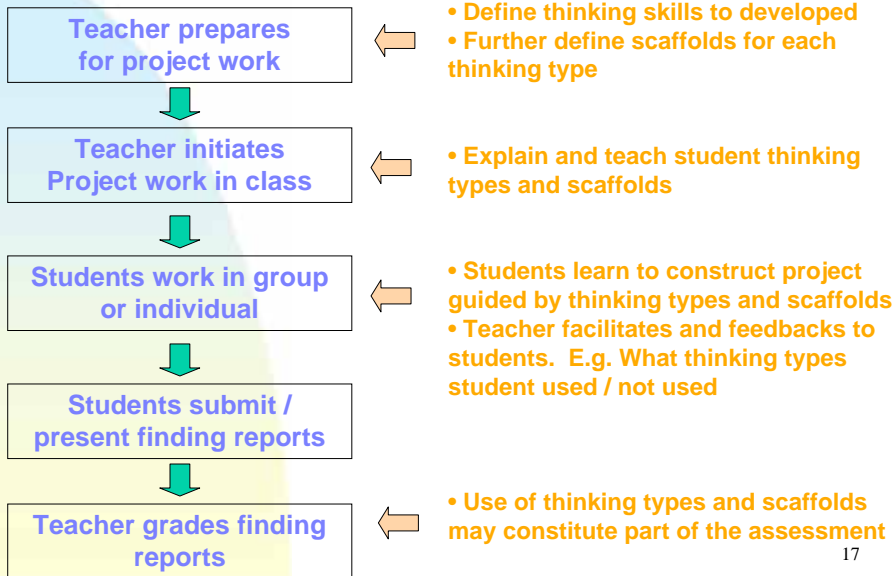
Thinking Type	Scaffold
A Theory	Key Points Author How to apply Source

- Teachers define Thinking Types & Scaffolds

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Pedagogical Framework of KC: Thinking Types & Scaffolds

Roles of Thinking Type & Scaffold



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Pedagogical Framework of KC: Thinking Types & Scaffolds

Why Thinking types and scaffolds?

→ *In meta-cognition, if you want to advance from one stage of knowledge to the next stage, you must know and be able to express what you know and what you do not know!*

Use of Thinking types and scaffolds becomes a challenge to:

👉 Students

👉 Even Teachers

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Pedagogical Framework of KC: Key Words

Students Learn through use of WORDS

- Identify key words and use them
- Label key words
- Example: *Sperm* and *ovum*

Notes

👉 [A Theory] I think we need 2 things by Pak Yin 10/9/2002 9:04:28 PM

[Evidence] I think we need 2 things: *Sperm* and *ovum* [Evidence] but I do not know how!

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Pedagogical Framework of KC: Summary

Students Learn to summarize:

- Example of Students & Teacher participate in a forum

The screenshot shows a forum thread with the following content:

- [Question] Can anyone tell me? by Eddy Lee 10/9/2002 1:37:25 PM
- [A Theory] I think we need 2 things by Pak Yin 10/9/2002 9:04:28 PM
- [I Agree] I want to know how to form baby by May Yip 10/9/2002 9:59:05 PM
- [A Theory] I know how by Matthew Lo 10/9/2002 10:01:12 PM
- [I Agree] Good job Matthew by Miss Liu 10/9/2002 10:05:49 PM
- [Opinion] Sperm combines with ovum by Susan Chan 10/9/2002 10:11:44 PM
- [Example / Illustration] Does it look like... by Tanya Au 10/9/2002 10:19:50 PM
- [Question] Does everyone think this way? by Miss Liu 10/9/2002 10:23:37 PM
- [Summary] My Little Summary by Tanya Au 10/12/2002 12:38:20 AM

The summary post by Tanya Au includes the following details:

- Title: My Little Summary
- Thinking: Summary
- Author: Tanya Au [10/12/2002 12:38:20 AM]
- Content: My summary is:
 - It takes sperms and ovum to become fertilized ovum
 - This fertilized ovum then beomes baby

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Pedagogical Framework of KC: Facilitation

Teachers facilitate student's learning through **Group Portfolio**:

- Overview of entire class contribution and performance
- Analyses: Monitoring the process of project learning
- Respond to each student's note

	Notes created	Key word used	Scaffold used	Notes read	Cross-reference	Summary	Picture used ²¹
1 Eddy Lee	2	0	2	0	0	0	0
2 Guest	0	0	0	0	0	0	0
3 John Lee	3	1	3	0	0	0	0
4 Matthew Lo	1	3	1	0	1	0	0
5 May Yip	4	0	4	0	0	0	0
6 Miss Liu	3	0	1	0	0	0	0
7 Mr. Sam	0	0	0	0	0	0	0
8 Pak Yin	2	1	1	0	1	0	0
9 Stalla Ko	1	0	1	0	0	0	0
10 Stanley Ho	1	0	1	0	1	0	0
11 Susan Chan	2	5	2	0	0	0	1
12 Tanya Au	2	0	1	0	1	0	0
13 Tracy Kwok	2	0	2	0	0	0	0
Total	13	23	5	8	0	4	1

Pedagogical Framework of KC: Facilitation

Teachers facilitate student's learning through **Individual Portfolio**:

- Study the thinking pattern of each student
- Provide just-in-time feedback to student and parents
- Example: know what each student's thinking and what they are **NOT** thinking of.

Notes Created by John Lee (Total 3 Notes)		
Forum	All	Sort by Date
Upstream		
by John Lee		
Responded by (Downstream)		
1	[Question] What are twins? by Tanya Au 10/9/2002 10:25:31 PM	[Question] Why by May Yip 10/9/2002 10:39:05 PM [Opinion] Your are not all right by John Lee 10/9/2002 11:01:07 PM
2	[A Theory] Two babies in their mother by Tracy Kwok 10/9/2002 10:52:18 PM	[I Do Not Agree] no, u r wrong by John Lee 10/9/2002 10:54:27 PM [A Theory] There are identical and fraternal twins by Tracy Kwok 10/9/2002 11:05:13 PM
3	[Question] Why, and who make them? by May Yip 10/9/2002 11:05:29 PM	[A Theory] identical twins by John Lee 10/9/2002 11:08:11 PM [Question] Other type of twin? by May Yip 10/9/2002 11:10:14 PM

Thinking types not used are:
 Example / Illustration | An Idea | I Agree | A Case | Question

Pedagogical Framework of KC: Measure Learning Outcomes

While students and teachers are participating forum discussion, KC is generating analyses on **Learning Outcomes** or **Project Portfolio**.

- Example:
 - 2 Theories were discovered in forum 1, 3 theories in forum 2
 - 6 Questions were raised in forum 2

Thinking Type	Forum 1	Forum 2	Forum 3	Forum 4
1 [A Case]	0	0	0	0
2 [A Theory]	2	3	1	0
3 [An Idea]	0	0	0	0
4 [Example / Illustration]	1	0	0	0
5 [I Agree]	2	0	0	0
6 [I Do Not Agree]	0	1	0	0
7 [Opinion]	1	4	0	0
8 [Question]	2	6	0	0
9 [Summary]	1	0	0	0
Total	9	14	1	0

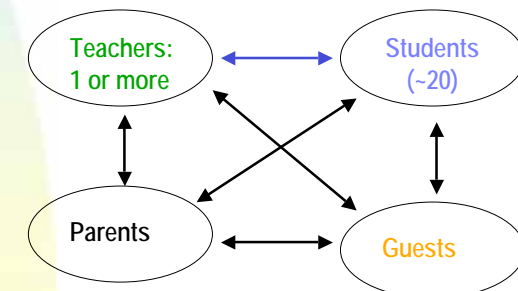
Pedagogical Framework of KC: Collaboration Model

Traditional collaboration models:

- Group of 3-6 from the same class
- Or individual project
- 1 teacher to ~35 students (or 6 groups)

Collaboration models using KC:

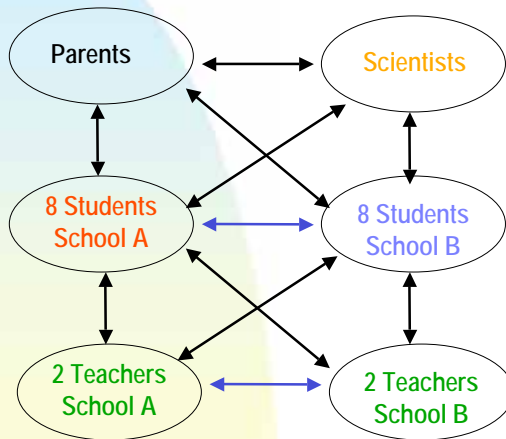
- Variety of models possible



Pedagogical Framework of KC: Collaboration Model

Collaboration models using KC: Why are there twins?

- Primary 5 students from 6 schools



Role of Parents

- Informed of this project and came for an orientation meeting
- Help kids to understand the searched materials

Role of scientists

- Help to answer questions

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Pedagogical Framework of KC: Collaboration Model

Collaboration models using KC: 若望鮑思高神父的生平 Life of Don Bosco

- 3 classes of primary 6 students from 1 school

Class A	Class B	Class C	Community
Group 1 (5)	Group 1 (5)	Group 1 (5)	Childhood 若望鮑思高的童年
Group 2 (5)	Group 2 (5)	Group 2 (5)	Childhood 若望鮑思高的童年
Group 3 (5)	Group 3 (5)	Group 3 (5)	Childhood 若望鮑思高的童年
Group 4 (5)	Group 4 (5)	Group 4 (5)	Youth 若望鮑思高的青年時期
Group 5 (5)	Group 5 (5)	Group 6 (5)	Youth 若望鮑思高的青年時期
Group 6 (5)	Group 6 (5)	Group 6 (5)	Adulthood 若望鮑思高的成年時期
Group 7 (5)	Group 7 (5)	Group 7 (5)	Adulthood 若望鮑思高的成年時期

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Pedagogical Framework of KC: Management Tools

• Resource areas

- Facilitators upload web links, MS Documents for reference
- Students can view or download

• Reflection (反思) Area

- Facilitators design questions for reflection
- Students fill in personal reflection
- Facilitators analyze students' reflection

• Finding Reports

- Students submit individual or group reports

• Management Area

- Calendar to manage project timetable
- Announcements to all users

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Pedagogical Framework of KC: Project Summary

Project summary comes in few ways:

- Students can group all summaries into a finding report
- Ask students to present their findings in class
- Ask students to write reflection, questions like:
 - What task did I have to complete?
 - How did I go about completing them?
 - What have I learnt?
 - How do I express my idea to others?
 - What is my relationship with others?
 - What have I accomplished?
 - What difficulties did I faced?
 - How do the project applied to my life?
 - ...

Why are there twins?



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Pedagogical Framework of KC: Student Portfolio

Notes Created by Vivian Lim

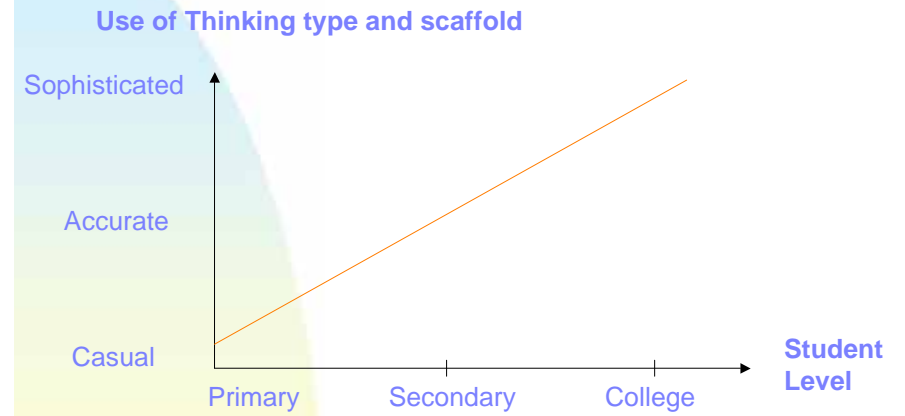
Community	EED252/TEd252: Project Work (PW)
Forum	Groups 1 & 3 - How do you select your project idea?
Total # of Notes	8
List of Note	<ol style="list-style-type: none"> [An Idea] NS anyone? by Tan Hui Ling Valerie 17/1/2003 17:12:40 [I Agree] More about NS for women... by Tan Hui Ling Valerie 17/1/2003 17:24:35 [An Idea] we form a group 4 of us? by Tan Hui Ling Valerie 17/1/2003 17:29:26 [I Agree] details on our group by Tan Hui Ling Valerie 17/1/2003 17:31:48 [An Idea] wanna join too? by Tan Hui Ling Valerie 17/1/2003 17:37:27 [A Case] OKie, shall we name our group and move on? by Tan Hui Ling Valerie 17/1/2003 17:40:02 [Opinion] then its just the 4 of us? confirm? by Tan Hui Ling Valerie 17/1/2003 17:46:21 [I Agree] okiel TEAM NS by Tan Hui Ling Valerie 17/1/2003 17:48:1

Note Details	
1. [An Idea] NS anyone?	17/1/2003 17:12:40
Content	[Question] Hi, I'm interested in doing on the history of NS, now the status of NS and perhaps the future and direction of how NS might go. Even towards women? [Question]
Keyword	
Scaffold	Extent, Important, In my opinion, Question, Reason
2. [I Agree] More about NS for women...	17/1/2003 17:24:35
Content	[Extent] Well, not bad I think that this is an area to discuss. Think this topic is really quite wide. But we mite not have enough pros and cons... So maybe we want to extend it to incorporate the story of NS? simple topic... [Extent]
Keyword	
Scaffold	Extent, Important, In my opinion, Question, Reason
3. [An Idea] we form a group 4 of us?	17/1/2003 17:29:26
Content	[Question] Type Here [Question]
Keyword	
Scaffold	Extent, Important, In my opinion, Question, Reason

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Strategic use of Thinking Type & Scaffold

- Experience from students

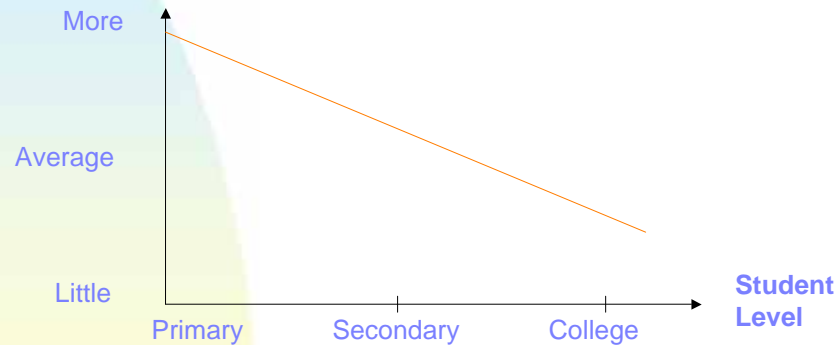


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Strategic use of Thinking Type & Scaffold

- Implication 1

Education and encouragement on Use of Thinking type and scaffold



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Strategic use of Thinking Type & Scaffold

- Implication 2

Emphasis in Facilitation

Learning / collaboration outcomes

Students are competent in using thinking types

Students are learning to use thinking types

Learning Process

Primary Secondary College Student Level

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Strategic use of Thinking Type & Scaffold

- Bloom's Taxonomy

You can design your thinking types and scaffolds according to Bloom's taxonomy.

範疇 Domain	Thinking / Knowledge Type & Scaffold
知識應用 Knowledge Application	<ul style="list-style-type: none"> • Sales & Marketing <ul style="list-style-type: none"> – Strategy & Plan – Sales forces – Market analysis • Human Resource <ul style="list-style-type: none"> – Recruitment – Incentive scheme •

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Assessment: Measure the Learning Outcomes with Rubrics

LO	Masterful	Skilled	Basic
理論篇 (knowledge)	<ul style="list-style-type: none"> • Good explanation with supported evidence 	<ul style="list-style-type: none"> • Give clear explanation with own opinion or examples 	<ul style="list-style-type: none"> • Give simple explanation with little own opinion
如果應用 (Knowledge Application)	<ul style="list-style-type: none"> • Should good understanding of knowledge • Apply in creative and flexible way 	<ul style="list-style-type: none"> • Apply well with knowledge in limited way • Apply in familiar context 	<ul style="list-style-type: none"> • Apply with help from teachers or friends or laid out guidelines
我的分析、檢討 (Analysis & Evaluation)	<ul style="list-style-type: none"> • Become little expert • Distinguish the differences between opinion, argument and fact 	<ul style="list-style-type: none"> • Evaluate independently • Aware of differences between opinion, argument and fact 	<ul style="list-style-type: none"> • Need help from other's analysis • Not aware of differences between opinion, argument and fact
我的理解 (Comprehension)	<ul style="list-style-type: none"> • Formulate simple questions based on information • With search techniques • Can tell the source is relevant 	<ul style="list-style-type: none"> • Formulate simple questions based on information • With search techniques • May not tell the source is relevant 	<ul style="list-style-type: none"> • Cannot search information independently • Cannot tell the source is relevant • Form questions with assistance

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Assessment: Measure the Learning Outcomes with Rubrics

LO	Masterful	Skilled	Basic
我不同意 (Communication)	<ul style="list-style-type: none"> • Good reasons with facts • Point out new direction 	<ul style="list-style-type: none"> • Give reasons with supportive facts 	<ul style="list-style-type: none"> • Give reasons for disagreement
我的方案 (Synthesis)	<ul style="list-style-type: none"> • Create new solution in a good format • Combine new information with old knowledge • Able to summarize information 	<ul style="list-style-type: none"> • Create new solution in a good format • Combine new information with old knowledge • Struggle to summarize information 	<ul style="list-style-type: none"> • Struggle to create solution • Combine new information with old knowledge • Summarize information with assistance
補充你的建議 (Collaboration)	<ul style="list-style-type: none"> • Understand what other said • Give own proposal in a creative way 	<ul style="list-style-type: none"> • Understand what other said • Give own opinion with facts 	<ul style="list-style-type: none"> • Understand what other said • Give own opinion
Presentation skills	•?	•?	•?

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Assessment: Using the Rubrics

Project Learning Skills Rubric			
Name: Peter Lee		Score: 9	Grade: B+
LO	Masterful (3)	Skilled (2)	基本 Basic (1)
理論篇 (knowledge)	<ul style="list-style-type: none"> • Good explanation with supported evidence 		
如果應用 (Knowledge Application)			<ul style="list-style-type: none"> • Apply with help from teachers or friends or laid out guidelines
我的分析、檢討 (Analysis & Evaluation)		<ul style="list-style-type: none"> • Evaluate independently • Aware of differences between opinion, argument and fact 	
我的理解 (Comprehension)	<ul style="list-style-type: none"> • Formulate simple questions based on information • With search techniques • Can tell the source is relevant 		

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