

Student collaboration and engagement – is it more than flipping a classroom?

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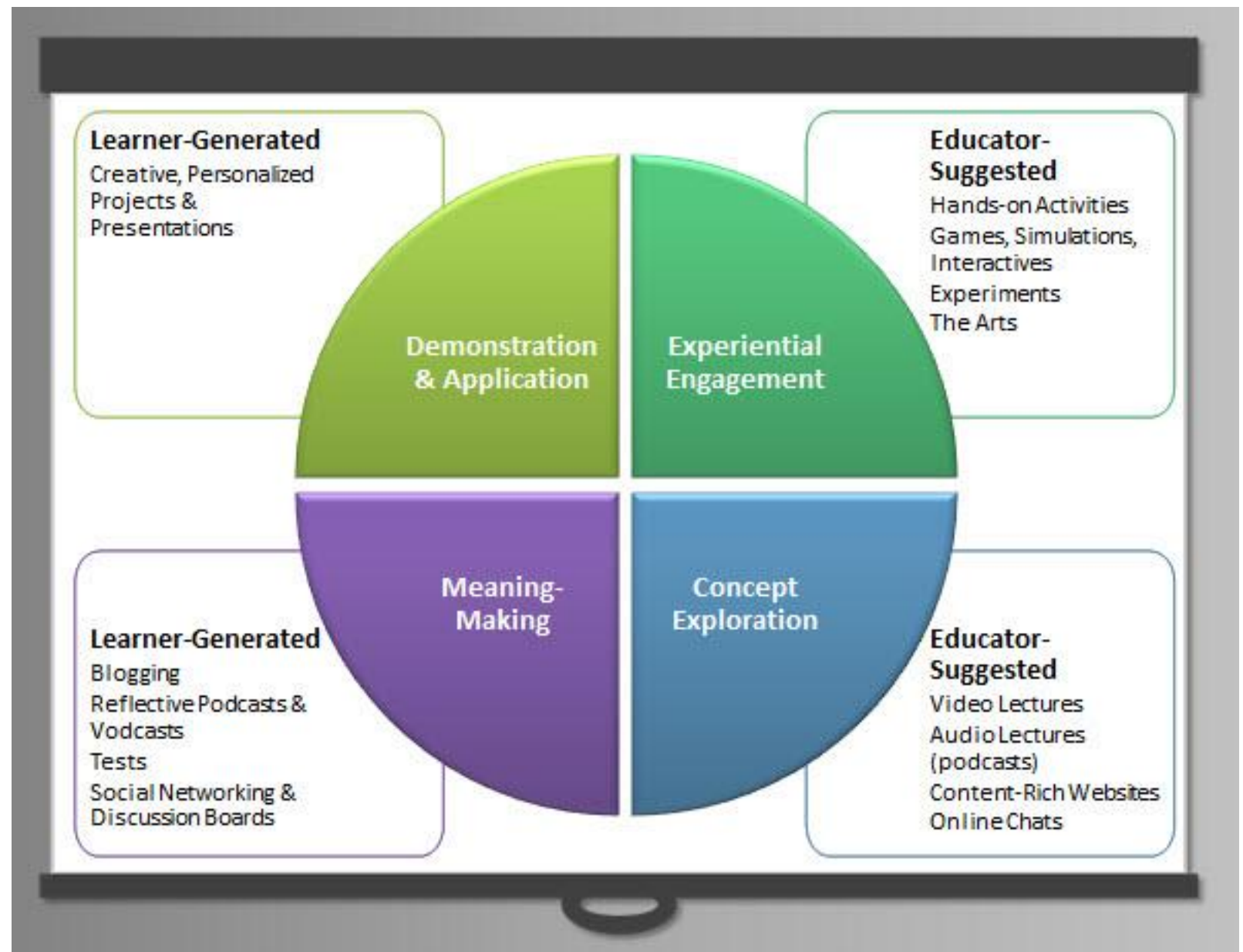
Adjunct Professor of Australian Catholic University

A flipped classroom



Flipping the Classroom - Simply Speaking

Rethinking higher education designs



<http://ileighanne.files.wordpress.com/2013/01/flipped-classroom-learning-cycles.jpg>

Accessed 7/4/2014

The flipped classroom – fallacies & opportunities

Fallacies

- Content is still owned by the lecturer
- ‘Learning by doing’ is an add-on to presentation modes
- Lectures are converted to homework
- Using new ‘free’ class time for more direct instruction

Opportunities

- Active learning
 - Inquiry
 - Research and knowledge building
- Task design for deep learning
- Differentiated learning > own pace
- Constructive, Socratic conversations

- Participatory – learner-centric; student as consumer and producer of knowledge
- Authentic learning: experiences grounded in the real world; outcome-driven; lasts beyond the test
- Flexible: multi-modal format; catering to different learning styles and different lifestyles



Building new spaces for student
collaboration

The Centennial Campus

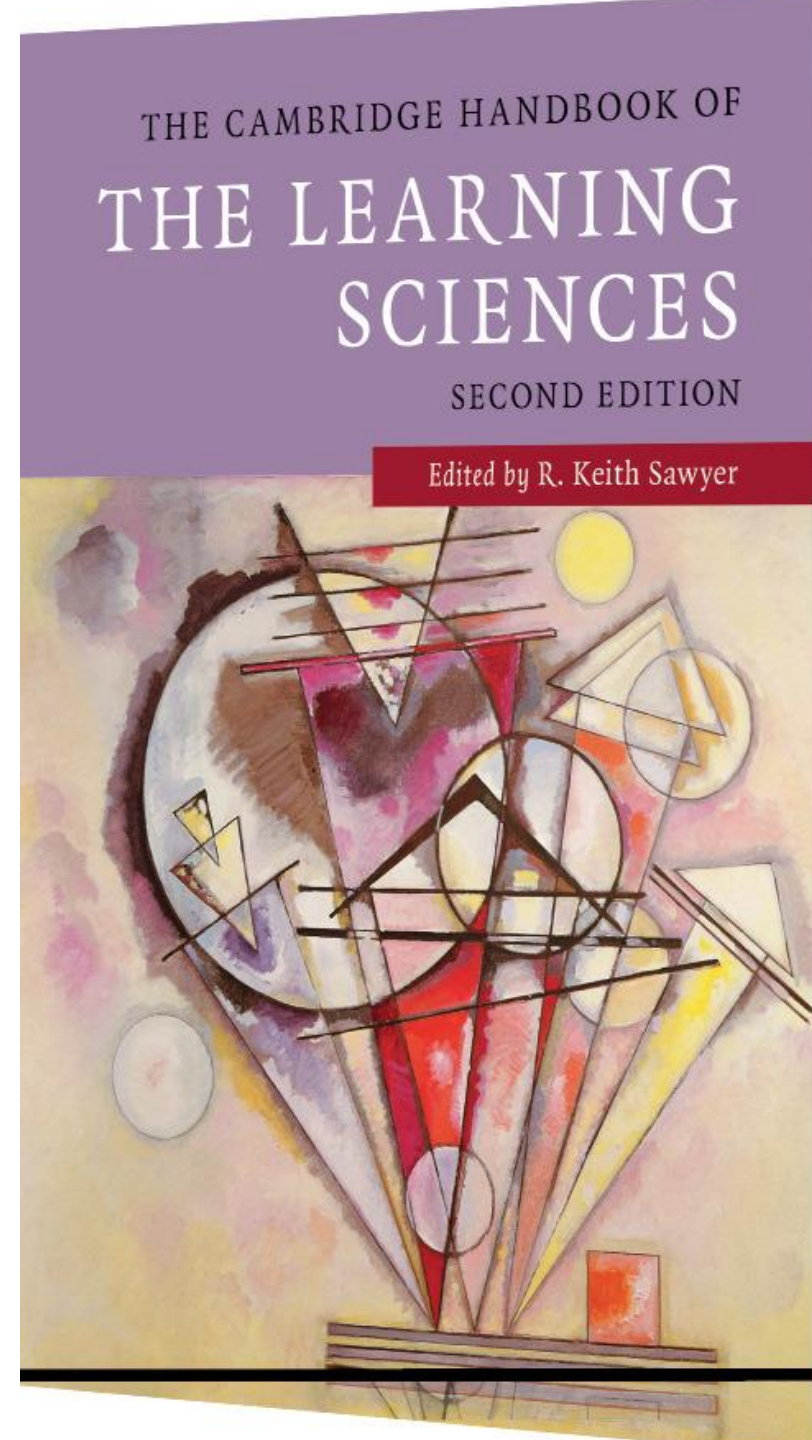
- Varied, new spaces for student learning
- Shopping mall meets library...

[The Chi Wah Learning Commons](#)

The Learning Sciences and Flipped Classrooms

Cambridge Handbook of the Learning Sciences (CHLS)

- R. Keith Sawyer, Editor
- 1st edition (2006)
 - *By December 2011, 5,000 copies sold*
 - *translated into Japanese and Chinese.*
- 2nd edition (August 2014)
 - total number of chapters has only grown by two—from 34 to 36
 - new outline reflects the changes and development of a vibrant and rapidly growing field
 - contributors to the first edition were almost exclusively from the USA; in contrast, contributors to the second edition represent the many countries with active ongoing research in the learning sciences.



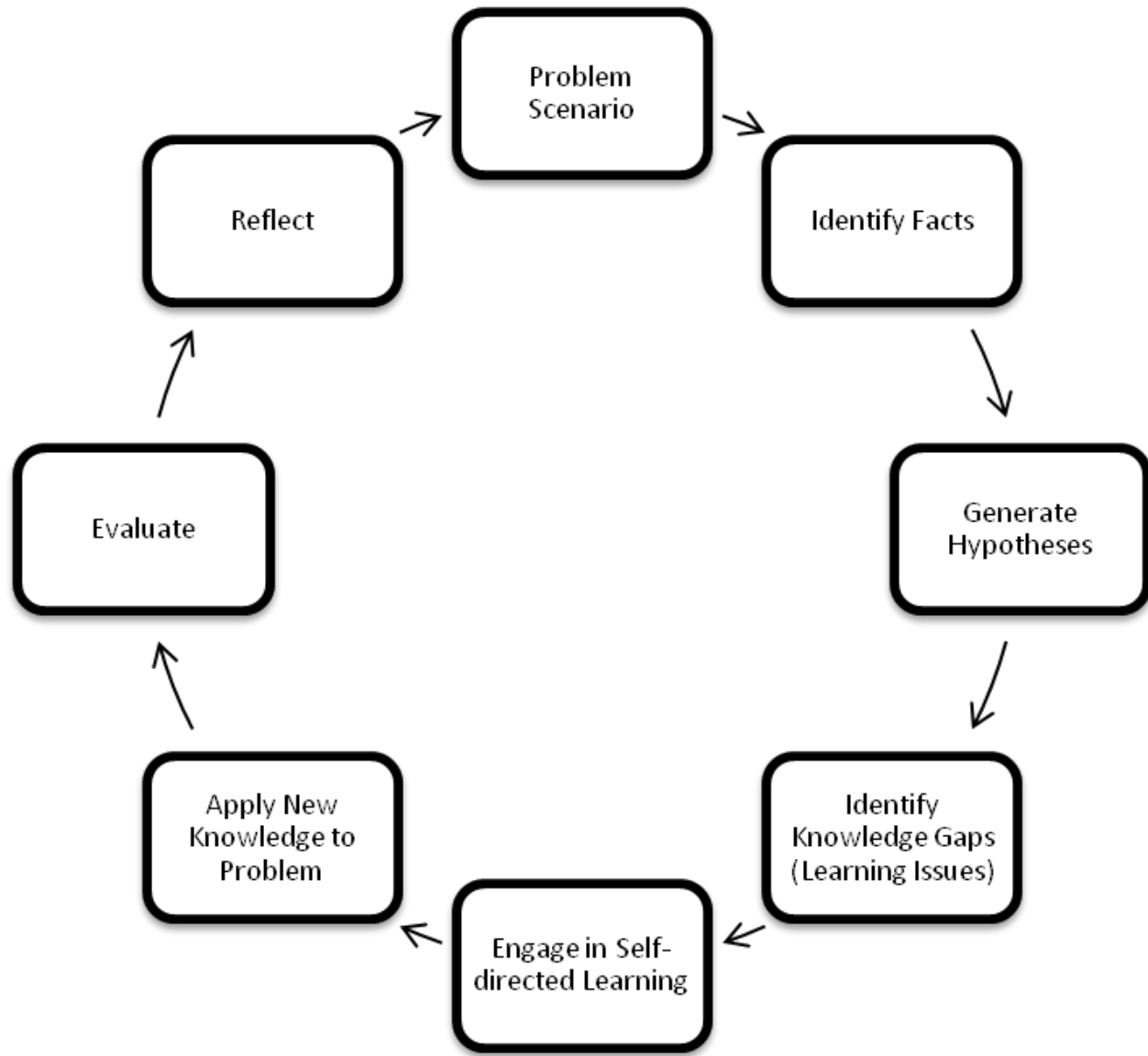
Ch15 Problem-based learning

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Introduction

- Problem-based Learning (PBL) is an active approach to learning in which learners collaborate in understanding and solving complex, ill-structured problems
- Because of their complex and ill-structured nature, these problems require learners to share their current knowledge, negotiate among alternative ideas, search for information, and to construct principled arguments to support their proposed solutions
- The goals of PBL address a large range of cognitive and affective dimensions with studies indicating that PBL students are productively engaged in deep approaches to learning and problem-solving
- As students engage with ill-structured problems, they develop skills in reasoning and self-directed learning, and construct flexible knowledge
- Compared to traditional forms of instruction, PBL enhances students' ability to transfer knowledge to new problems, and to achieve more coherent understandings



Dolmans & Schmidt's (2006) synthesis of studies on cognitive and motivational effects of small-group learning in PBL > engagement in the following aspects of the PBL process was consequential to stimulating students' "intrinsic interest in the subject matter":

- activation of prior knowledge;
- recall of information;
- cumulative reasoning;
- theory building;
- cognitive conflicts leading to conceptual change; and
- collaborative learning construction (p.333).

The problem cycle (Hmelo-Silver, 2004)

PBL as curriculum design

- a curriculum-level pedagogical strategy NOT one component of a curriculum that is otherwise didactic and instructionist
- Requires careful mapping of content and organization of problems aligned to learning outcomes across the years of the curriculum
 - becomes both the driver and link across disciplines
- Characteristics of successful PBL environments include:
 - content integration across a range of disciplines;
 - collaboration and teamwork;
 - application and synthesis of new knowledge towards greater understanding of the dimensions of the problem at hand;
 - reflection on the learning process with self and peer assessment;
 - engagement with 'real-world' problems and issues; and
 - examination processes measuring progress towards the goals of PBL.

HKU Case 1: undergraduate Dentistry – blended learning

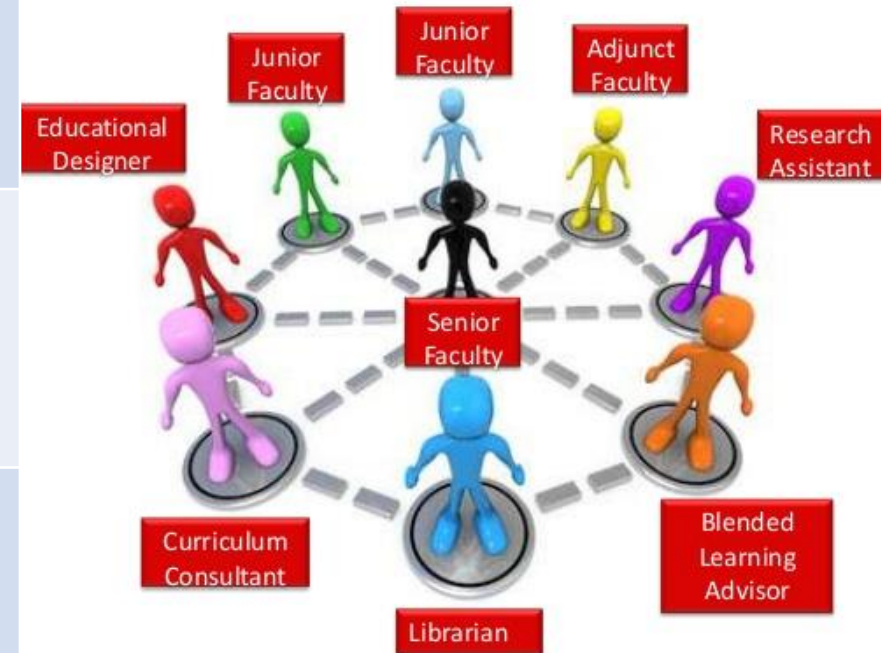
Infusing educational technologies within traditional PBL (PBL2.0)

Goals of PBL achieved at a macro level through full implementation of an overarching, integrated curriculum design and at a micro level in the complex interactions that occur in small-group, student-led and educator facilitated discussions

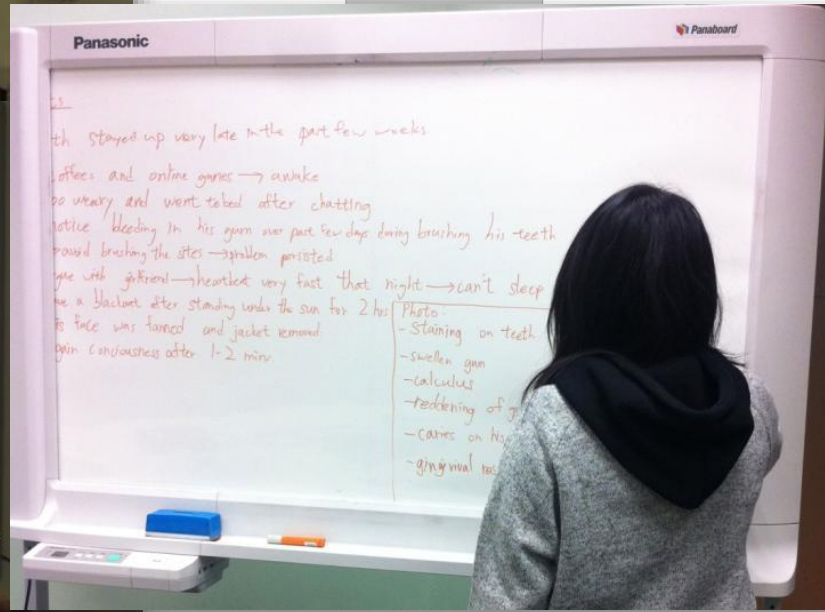
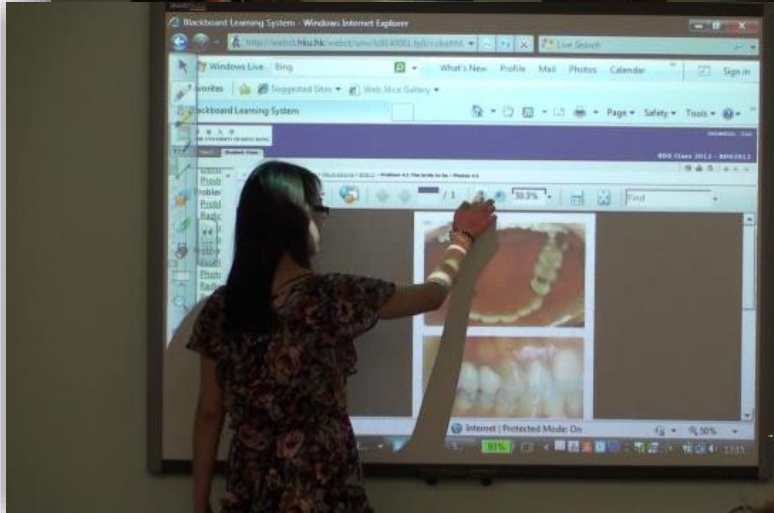
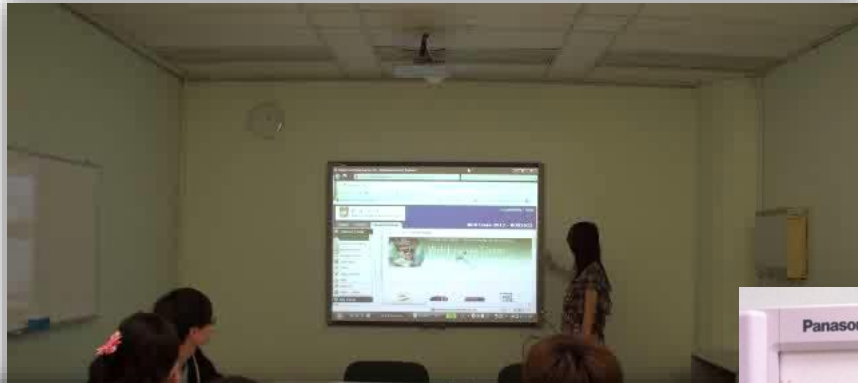


PBL2.0: E-learning for Problem-based Learning (PBL) @Faculty of Dentistry: The Team

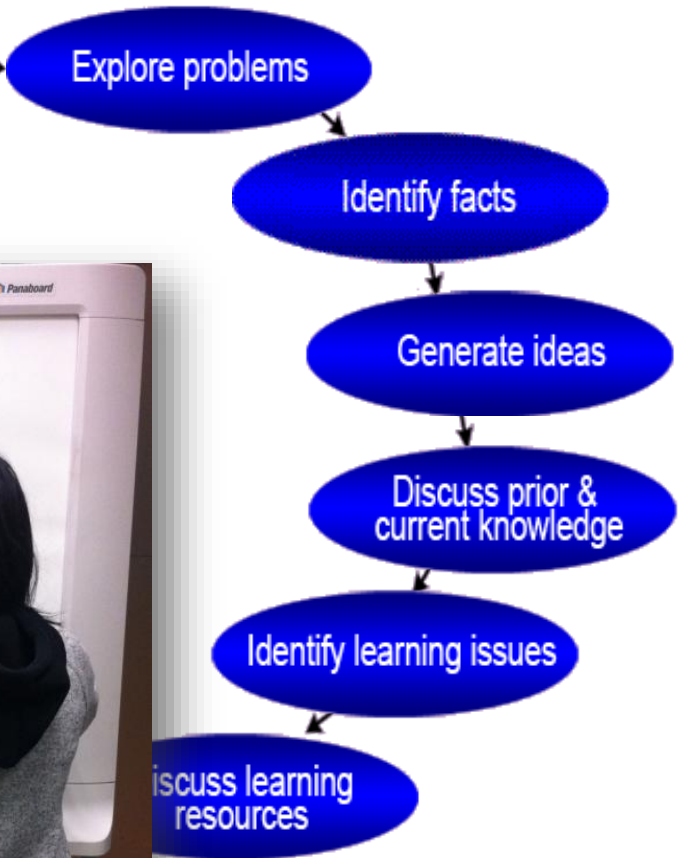
Team member	Profile	Team member	Profile
	<p>Dr Susan Bridges Assistant Professor, Dental Education & elearning</p> <ul style="list-style-type: none"> Assistant Dean (Curriculum Development) (2010-11) Undergraduate Education (2012) Curriculum development, including e-learning initiatives, to enhance student learning outcomes and to support territory-wide curriculum reform measures. FYE Coordinator (2011-now) 		<p>Prof Cynthia Yiu Professor in Paediatric Dentistry</p> <ul style="list-style-type: none"> Associate Dean (Undergraduate Education) & Chair FCDC, BUS (2010-12) 2009 Outstanding Teacher Award by the HKU Faculty of Dentistry. Actively involved in PBL and development of the new 6-year dental curriculum in the Faculty of Dentistry.
	<p>Dr Michael Botelho Clinical Associate Professor in Oral Rehabilitation</p> <ul style="list-style-type: none"> Year Director for BDS 5 for over a decade Assistant Dean (Undergraduate Education) (2010-11) Member, Faculty Task Force for the development and implementation of the BDS PBL Curriculum since its inception in 1998. 		<p>Prof Edward Lo Professor in Dental Public Health</p> <ul style="list-style-type: none"> Full-time teacher of the University of Hong Kong for 23 years. Undergraduate Programme Director in 1997-2002 Chair, PBL review Group
	<p>Dr Rory Watt Assistant Professor in Oral Biosciences</p> <ul style="list-style-type: none"> Chair Problem Development Group (BDS1b) Development, delivery and review of the brand-new 6-year BDSI curriculum and syllabus 		<p>Dr Yanqi Yang Clinical Assistant Professor in Orthodontics</p> <ul style="list-style-type: none"> Undergraduate Programme Director in Orthodontics (2010-now) Actively involving in Problem Based Learning ever since she was appointed to the Faculty of Dentistry
	<p>Dr Peter Tsang Clinical Assistant Professor in Oral Rehabilitation</p> <ul style="list-style-type: none"> PBL for more than a decade. BDS I Year Director and past Chairman of the BDS I Problem Development Group PBL facilitator 		<p>Ms Jessica Wong e-Learning Officer</p> <ul style="list-style-type: none"> Supporting the faculty e-Learning development and managing web learning courses (Moodle & WebCT) for the undergraduate and postgraduate curriculum.



“The problem comes 1st”



Problem Scenario



Key

 Tutorial 1

Large screen visualisation to enhance collaboration



Explore problems

Discuss learning resources

Key

● Tutorial 1

resources

In-house digital resource building



Dr Henry Yip (Medicine)

Central Nervous System

Major Components:

- Brain
 - Cerebrum
 - Cerebellum
 - Brainstem
- Spinal cord

Encased in bone:

- Cranium (skull)
- Vertebral column (spine)



15-8

Identify facts

Generate ideas

Discuss prior & current knowledge

Identify learning issues

Discuss learning resources

Theme-based session

Key



Tutorial 1

Practical & Theme-based session

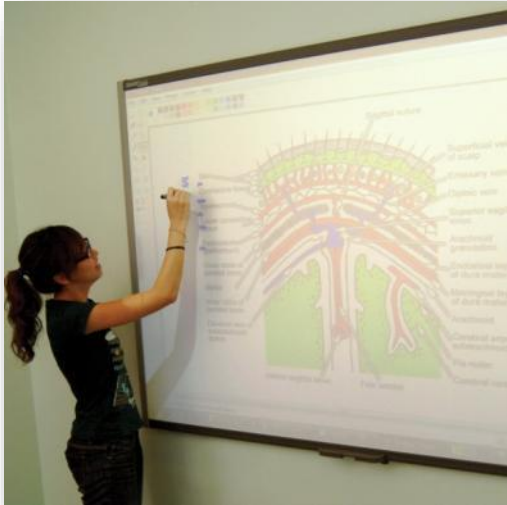
Students providing instant responses by iPad (iClass)

Knowledge building in online communities



Dr Winnie Choi (Clinical Assistant Professor - 1st batch of PBL Graduates)

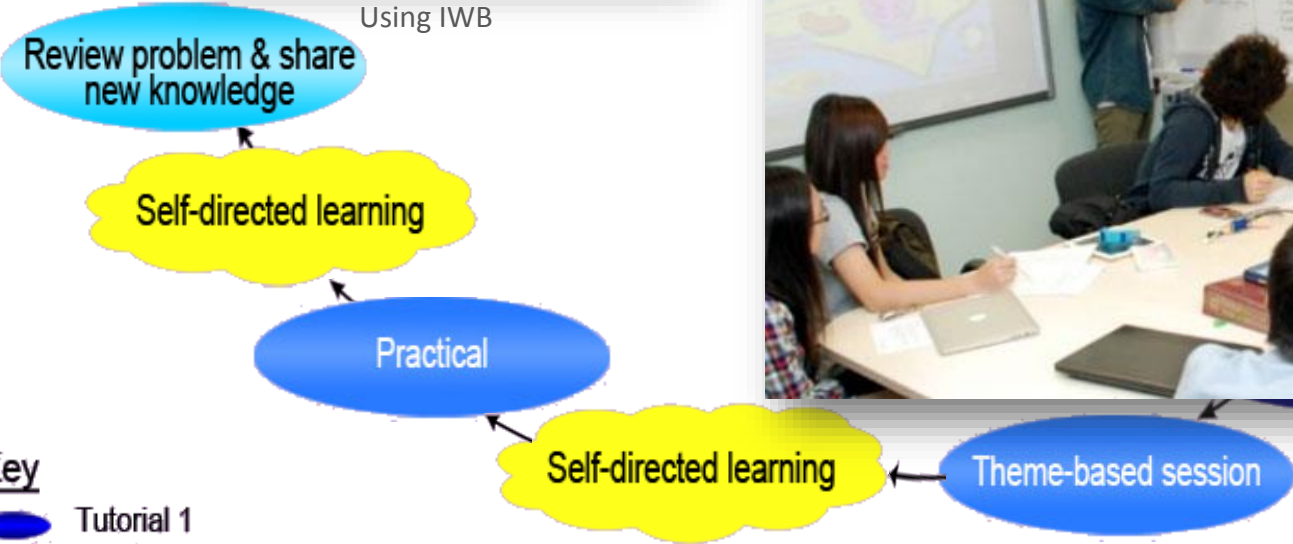
(inter)Active learning



Using IWB

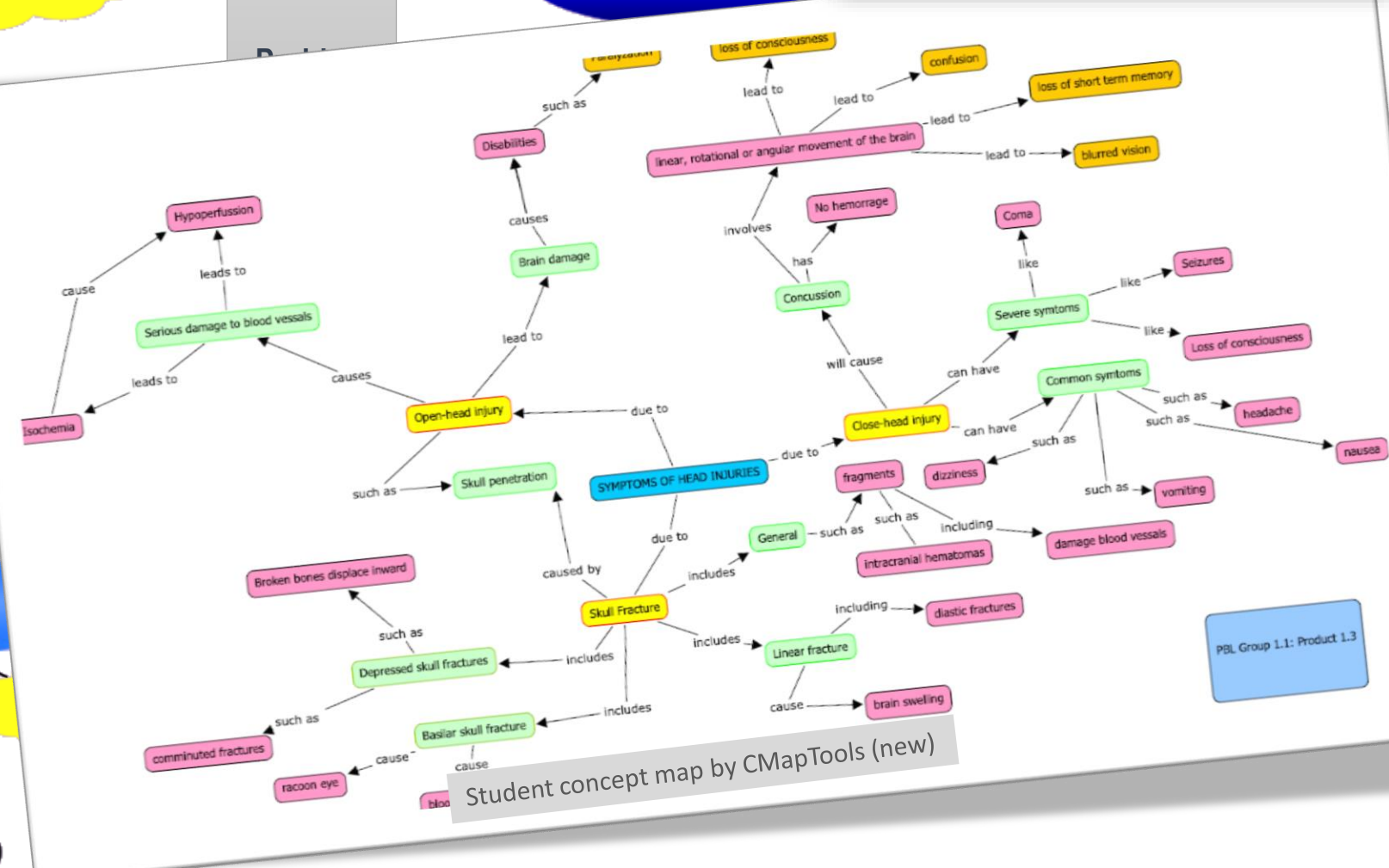
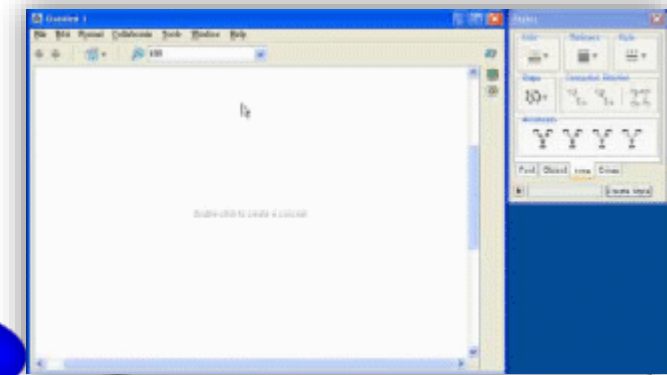


Using Panaboard



- Key**
- Tutorial 1
 - Practical & Theme-based session
 - Tutorial 2
 - Independent work (individual/group)

Learning tools



- Key**
- Tutorial 1
 - Practical & Theme-based session
 - Tutorial 2
 - Independent work (individual/group)

Student concept map by CMapTools (new)

PBL Group 1.1: Product 1.3

Re-designing Learning Spaces

Before upgrade



After upgrade (2012)

