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

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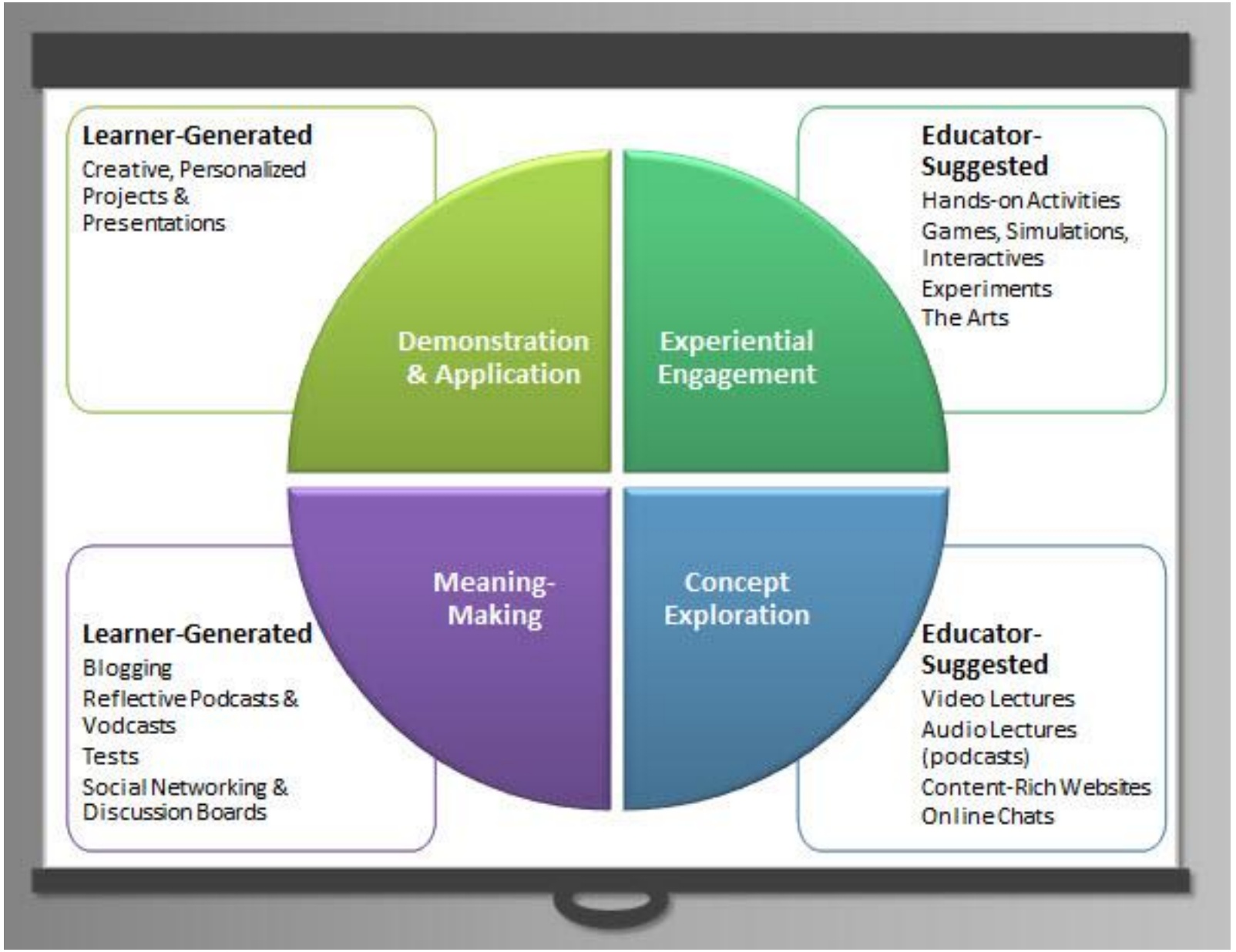
A flipped classroom

Flipping the Classroom - Simply Speaking

[PennState's View of the Flipped Classroom]

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

Dr Jeremy Williams, Griffith University
http://www.slideshare.net/jembwilliams/courting-the-future-student-adjusting-to-disruptive-innovation-in-the-higher-education-sector Accessed 7/4/2014

Building new spaces for student collaboration

The Centennial Campus

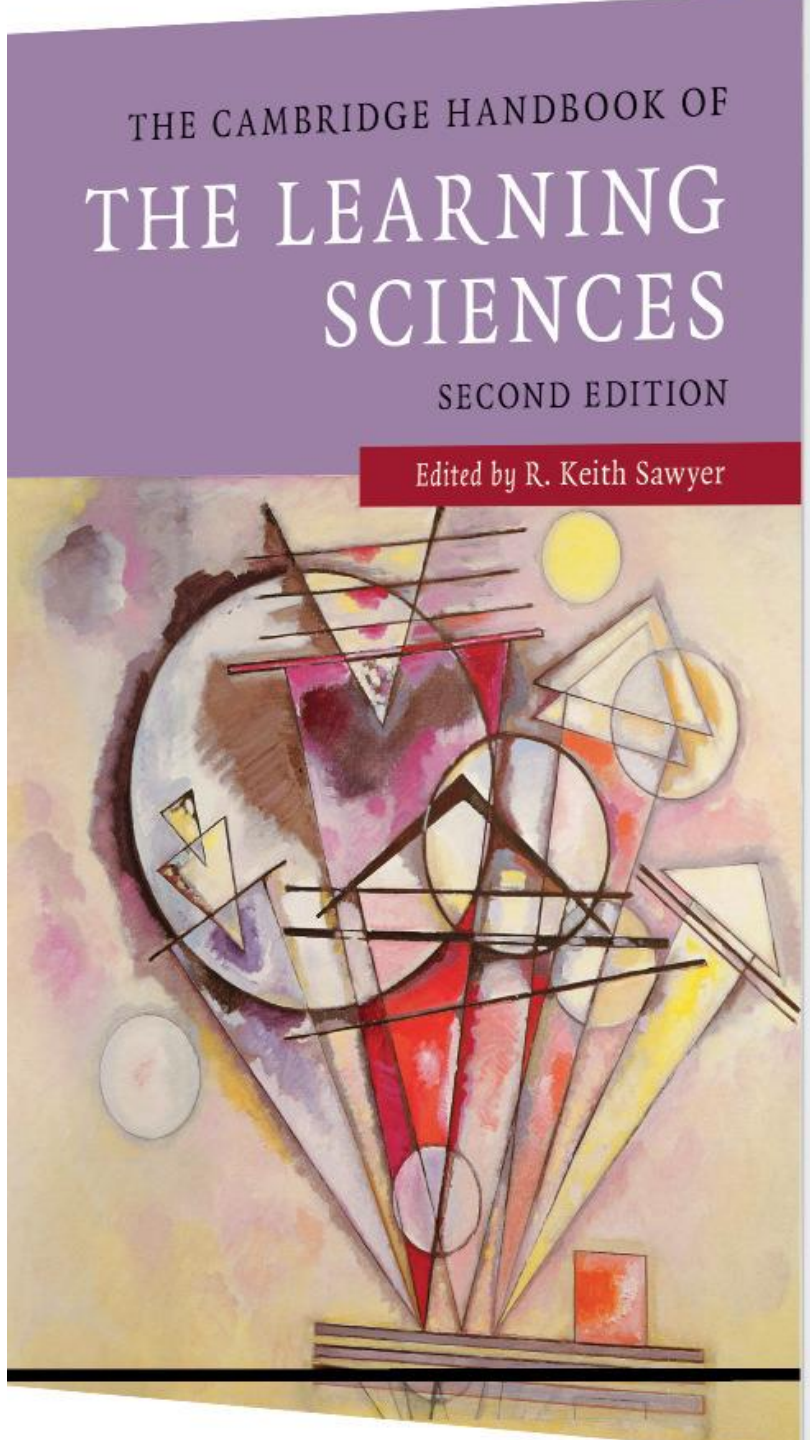
- Varied, new spaces for student learning
- Shopping mall meets library…

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.



Contents

Ch15 Problem-based learning

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Susan Bridges
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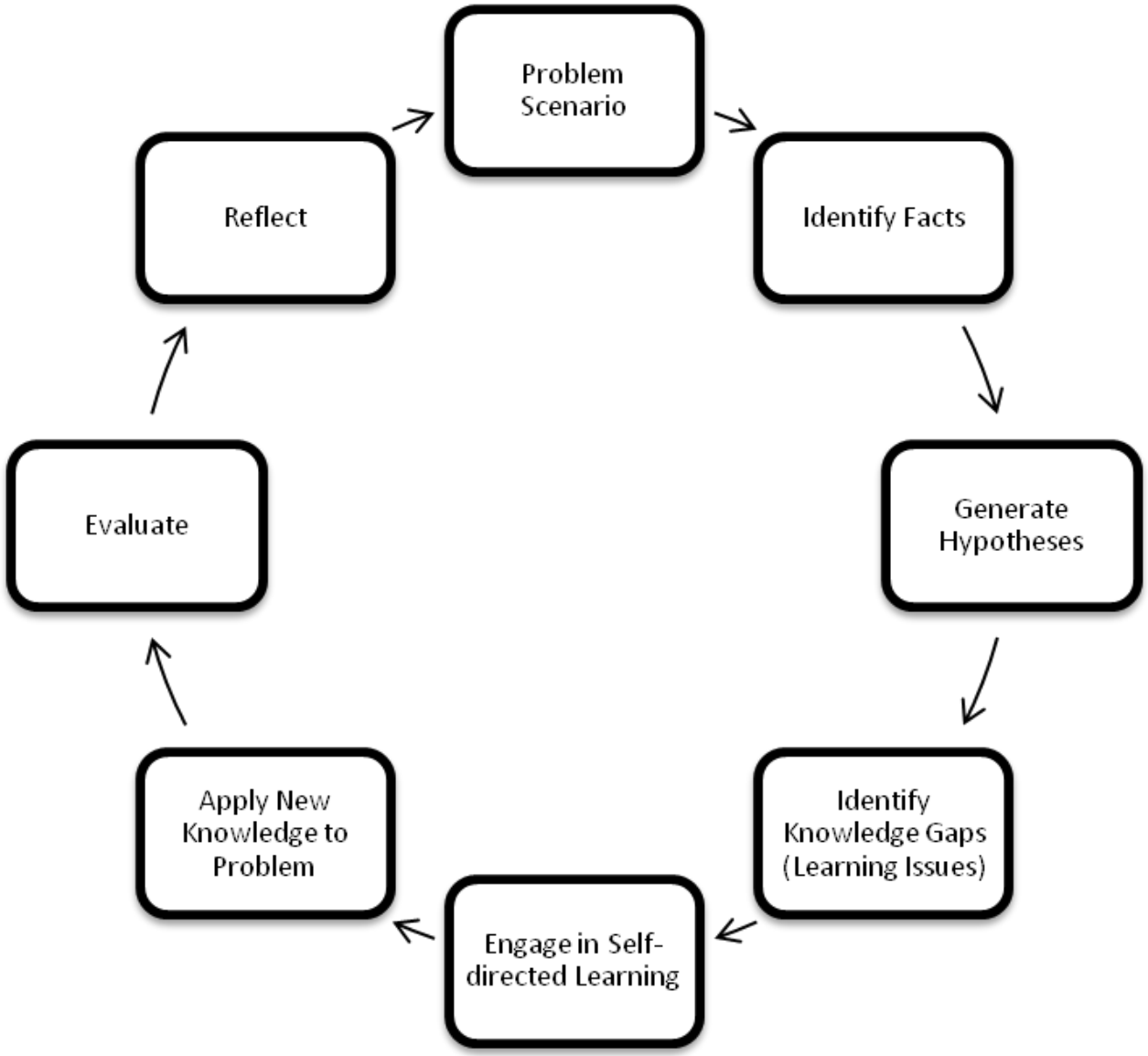
Cindy E. Hmelo-Silver
Rutgers University, USA

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)

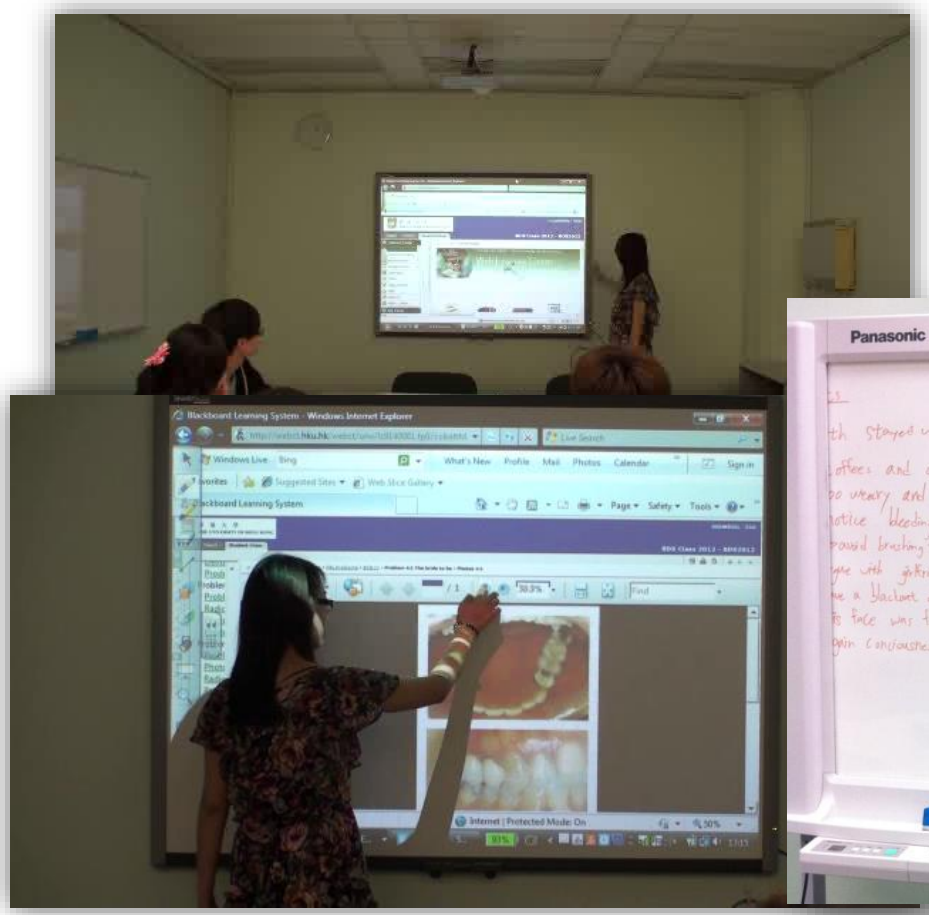
Goals of PBL achieved at a macro level through full implementation of an overarching, integrated curriculum design and at a micro level in the complex interactions that occur in small-group, student-led and educator facilitated discussions

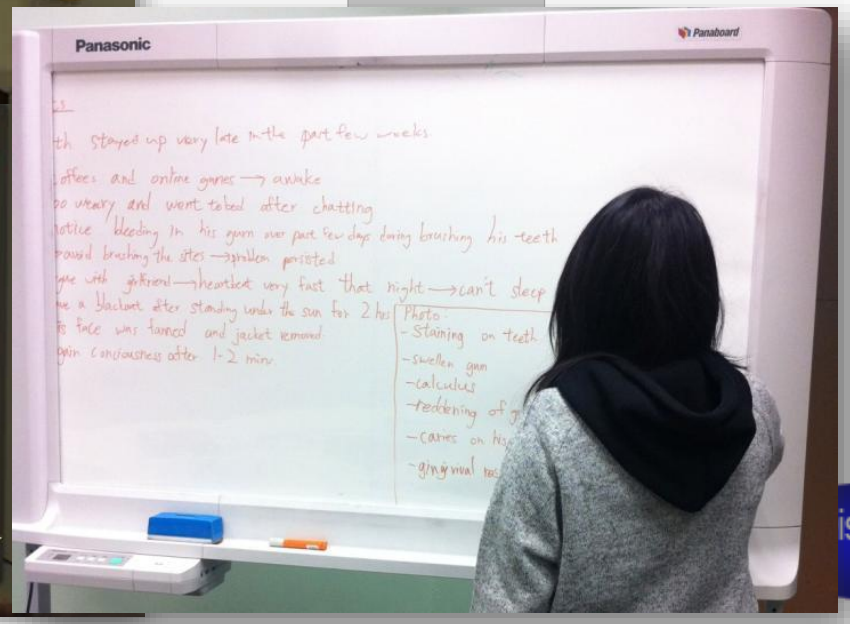
PBL2.0: E-learning for Problem-based Learning (PBL) @Faculty of Dentistry: The Team

Team member	Profile	Team member	Profile
	**Dr Susan Bridges** **Assistant Professor, Dental Education & elearning** • 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)		**Prof Cynthia Yiu** **Professor in Paediatric Dentistry** • 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.
	**Dr Michael Botelho** **Clinical Associate Professor in Oral Rehabilitation** • 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.		**Prof Edward Lo** **Professor in Dental Public Health** • Full-time teacher of the University of Hong Kong for 23 years. • Undergraduate Programme Director in 1997-2002 • Chair, PBL review Group
	**Dr Rory Watt** **Assistant Professor in Oral Bioscioences** • Chair Problem Development Group (BDS1b) • Development, delivery and review of the brand-new 6-year BDSI curriculum and syllabus		**Dr Yanqi Yang** **Clinical Assistant Professor in Orthodontics** • Undergraduate Programme Director in Orthodontics (2010-now) • Actively involving in Problem Based Learning ever since she was appointed to the Faculty of Dentistry
	**Dr Peter Tsang** **Clinical Assistant Professor in Oral Rehabilitation** • PBL for more than a decade. • BDS I Year Director and past Chairman of the BDS I Problem Development Group • PBL facilitator		**Ms Jessica Wong** **e-Learning Officer** • Supporting the faculty e-Learning development and managing web learning courses (Moodle & WebCT) for the undergraduate and postgraduate curriculum.

http://www.slideshare.net/jembwilliams/courting-the-future-student-adjusting-to-disruptive-innovation-in-the-higher-education-sector Accessed 7/4/2014

“The problem comes 1st”





Problem Scenario

Explore problems

Identify facts

Generate ideas

Discuss prior & current knowledge

Identify learning issues

iscuss learning resources

Key

Tutorial 1

Large screen visualisation to enhance collaboration

Explore problems

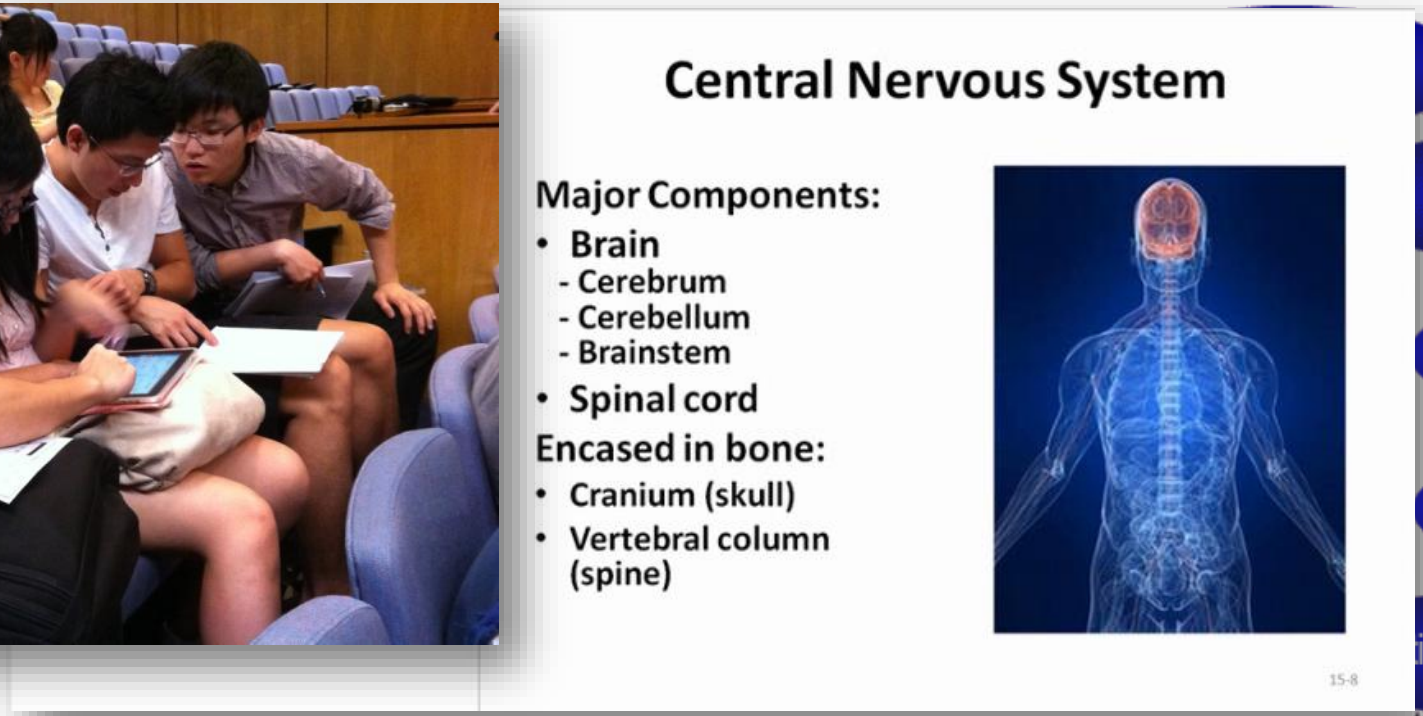
Discuss learning resources

esources

Key

Tutorial 1

In-house digital resource building



Dr Henry Yip (Medicine)

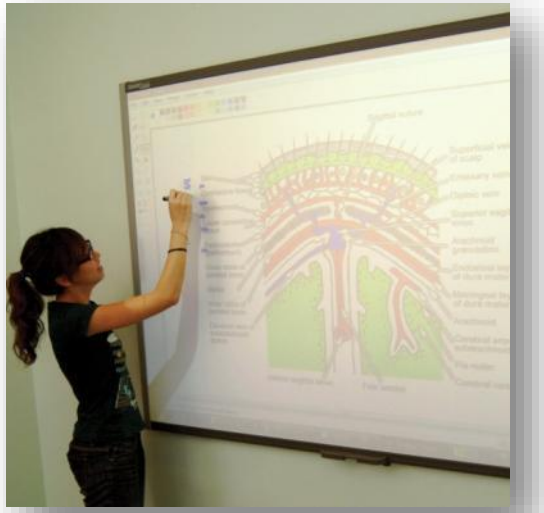
Students providing instant responses by iPad (iClass)

Knowledge building in online communities

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

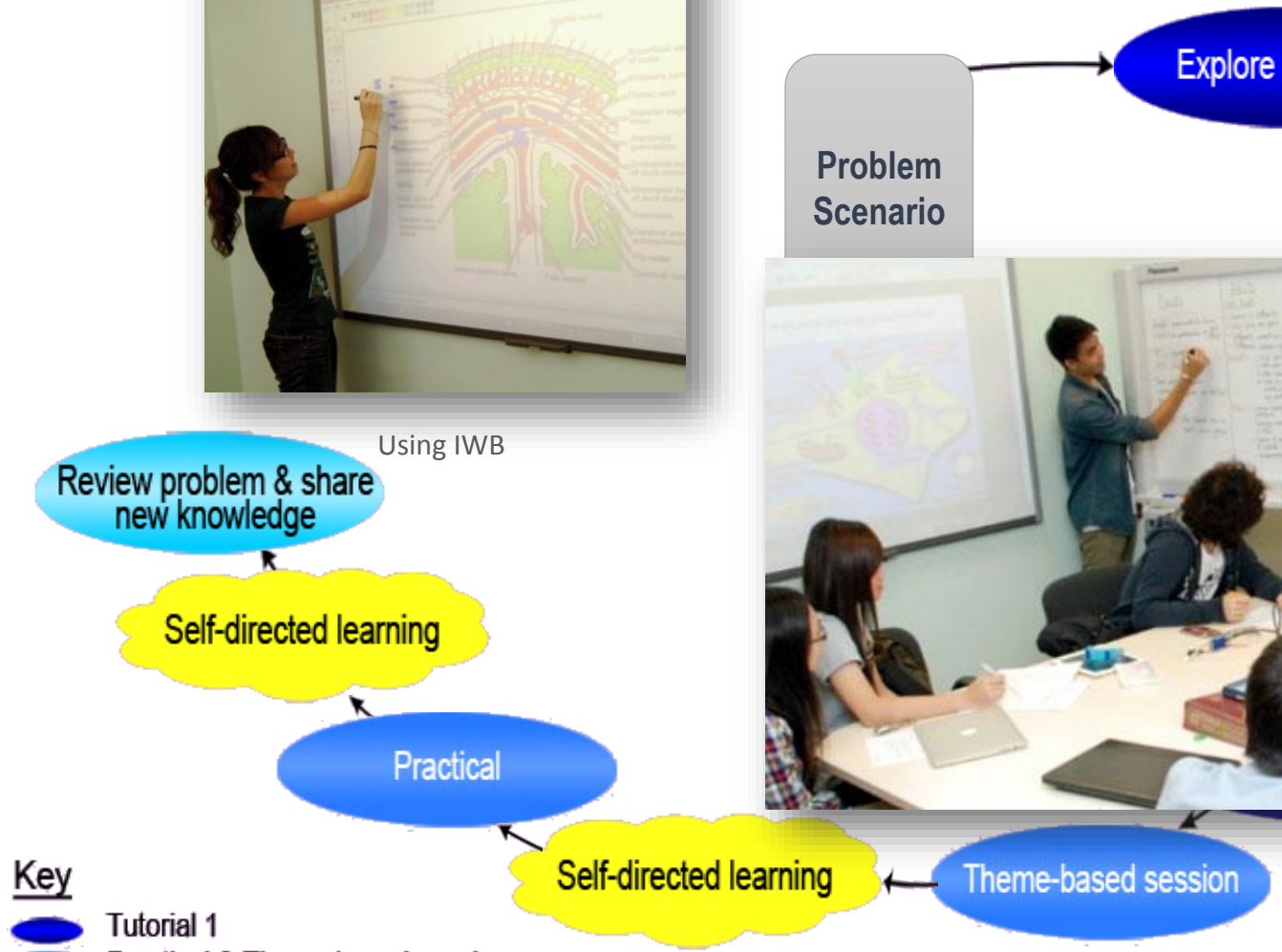
Independent work (individual/group)

(inter)Active learning

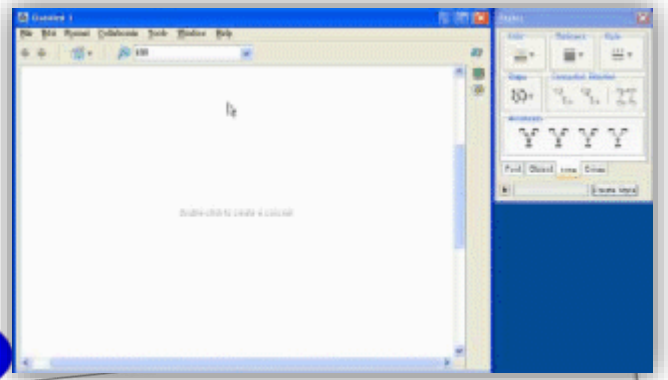


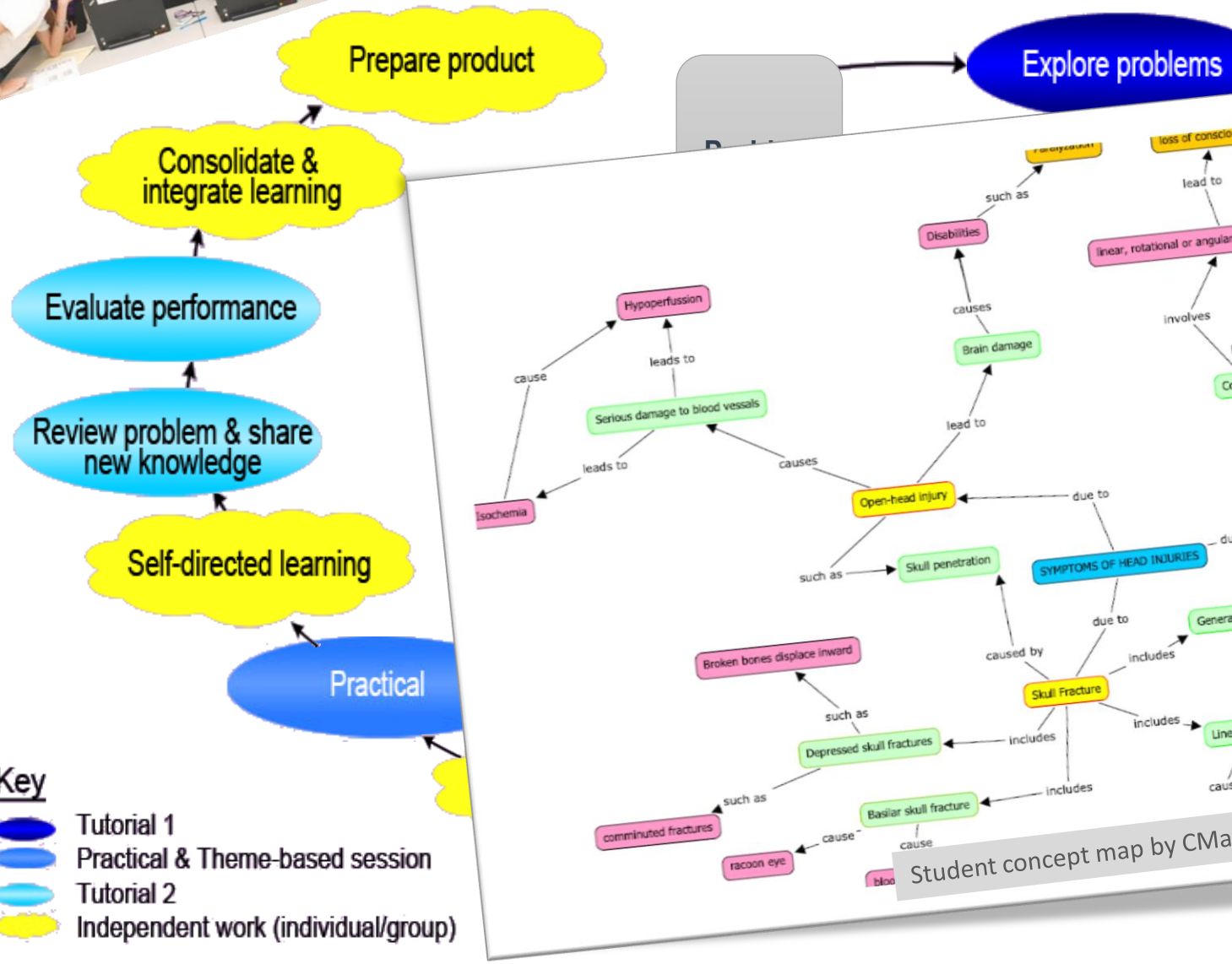
Using IWB

Using Panaboard



Learning tools





Student concept map by CMapTools (new)

Re-designing Learning Spaces

Before upgrade

After upgrade (2012)