

Blended approaches to e-learning: Principles and practices at The University of Hong Kong

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Massive Open Online Courses (MOOCs)

Distance education model

- Large enrolments (small completions)
- Few credit-bearing
- Large production costs
- Limited income

Early examples:

Peter Norvig and Sebastian Thrun: "Intro to Artificial Intelligence — Learn the Fundamentals of AI";

<https://www.udacity.com/course/cs271>

> 160,000 enrolled

Michael Sandel (Harvard): "Justice"

<http://www.justiceharvard.org/>



Commentary for a Special Issue “Massively Open Online Courses (MOOCs)” of the *Distance Education* Journal

Beyond Hype and Underestimation: Identifying Research Challenges for the Future of MOOCs

Gerhard Fischer

Center for LifeLong Learning and Design (L3D)

Department of Computer Science, and Institute of Cognitive Science

Boulder, Colorado USA

Hype	Underestimation
Free	Cost to university
Enrolment number 100,000+	Low completion rates
Accessible to all	Non-credit-bearing
Change the landscape of on-campus provision	Mainly older adult learners
Knowledge accessible to all (potential to erase poverty)	Mainly privileged enrolled

Trends in e-learning for on-campus experiences

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

Building new spaces for student collaboration

The Centennial Campus

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

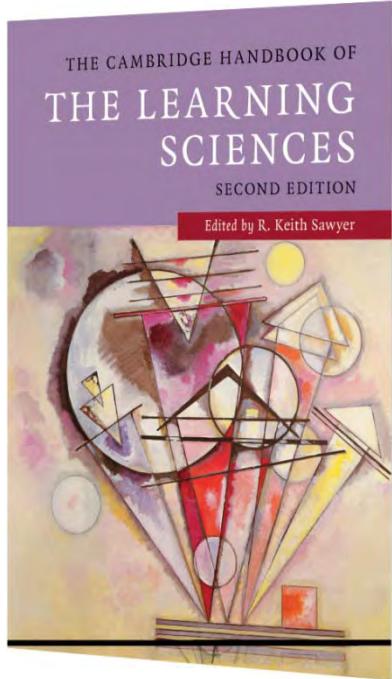
[The Chi Wah Learning Commons](#)

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

Jingyan Lu
Susan Bridges
The University of Hong Kong, China

Cindy E. Hmelo-Silver
Rutgers University, USA

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

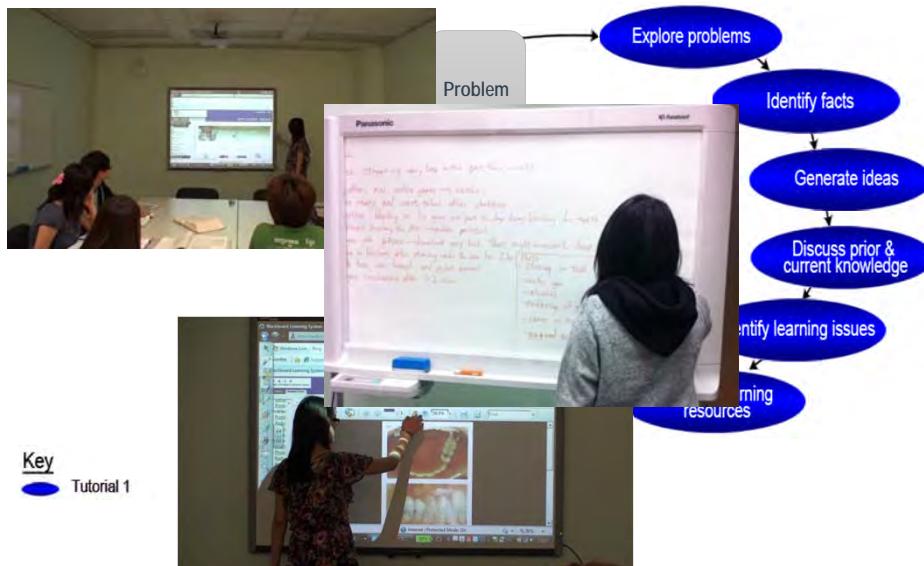
PBL2.0: E-learning for Problem-based Learning (PBL) @Faculty of Dentistry: The Team

Team member	Profile	Team member	Profile
	Dr Susan Bridges Assistant Professor, Dental Education & elearning <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) 		Prof Cynthia Yiu Professor in Paediatric Dentistry <ul style="list-style-type: none"> Associate Dean (Undergraduate Education) & Chair FDCD, BUS (2010-12) 2008 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 <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. 		Prof Edward Lo Professor in Dental Public Health <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
	Dr Rory Watt Assistant Professor in Oral Biosciences <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 		Dr Yanqi Yang Clinical Assistant Professor in Orthodontics <ul style="list-style-type: none"> Undergraduate Programme Director in Orthodontics (2010-now) Actively involved in Problem Based Learning ever since she was appointed to the Faculty of Dentistry
	Dr Peter Tsang Clinical Assistant Professor in Oral Rehabilitation <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 		Ms Jessica Wong e-Learning Officer <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.



<http://www.share.net/williamsoutliningthefuturestudenteducationandinnovationinthehighereducationsector> Accessed 7/4/2014

“The problem comes 1st”



Large screen visualisation to enhance collaboration



In-house digital resource building

Central Nervous System

Major Components:

- Brain
 - Cerebrum
 - Cerebellum
 - Brainstem
 - Spinal cord

Identify facts
Generate ideas
Discuss prior & current knowledge
Identify learning issues
Discuss learning resources

Theme-based session

Key

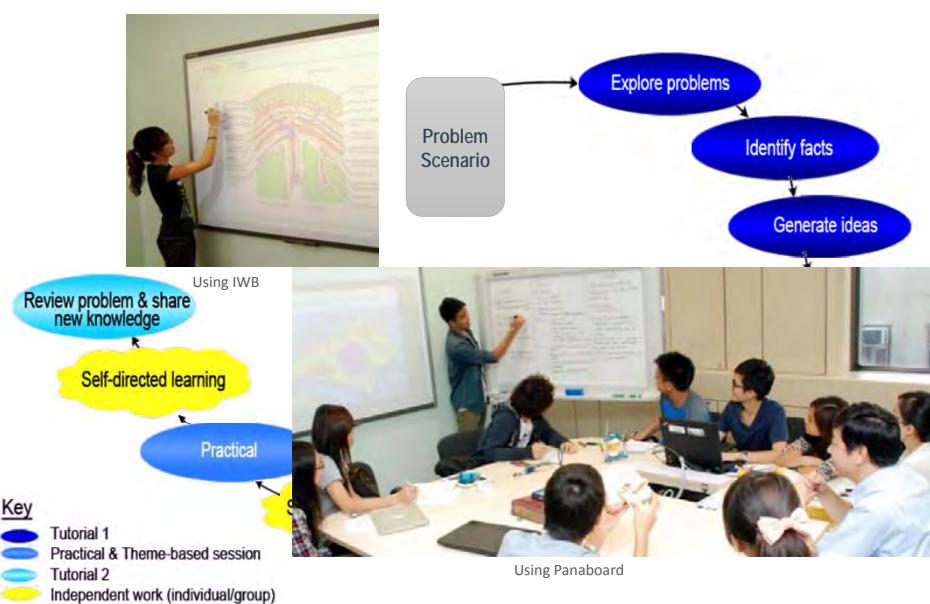
Students providing instant responses by iPad (iClass)

Knowledge building in online communities



Independent work (individual/group)

(inter)Active learning



Learning tools

Product 1.2
Effects of an ill-fitting denture on oral health

Key

- Tutor session
- Practical session
- Tutorial 2
- Independent work (individual/group)

Review

Evolve

Preparedness

Product 1.3

Student concept map by hand (old)

Student concept map by CMapTools (new)

Re-designing Learning Spaces

Before upgrade



After upgrade (2012)



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

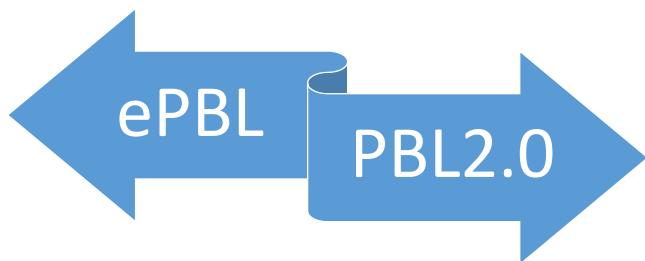
What's in a name?

ePBL (Blended Type A)

- Replace components of the PBL process with electronic medium

PBL2.0 (Blended Type B)

- Infuse technologies into the PBL process (both F2F and LMS)



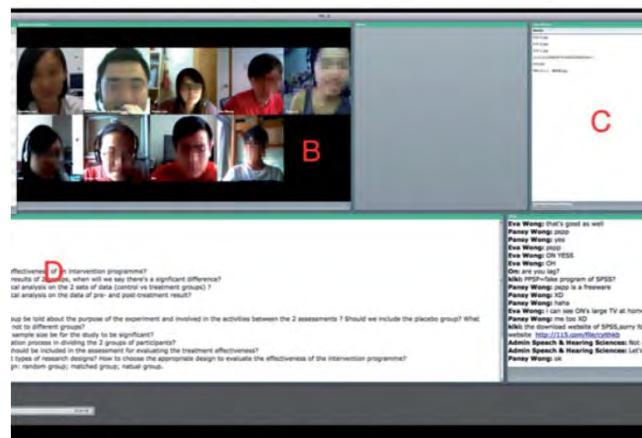
HKU Case 2:
Undergraduate S&HS - Online
PBL

ePBL

Replacing components of traditional PBL

Speech & Hearing Sciences (HKU)

- pilot study aim: design & implement an online learning environment for 3rd Year PBL
- Online PBL platform: Adobe Connect (2012): synchronous delivery facilitating multi-node, real time audio and/or visual communication, with other auxiliary functionalities such as document sharing and online chat



Quantitative: Assignment score comparison > online vs traditional PBL students > did not perform differently from each other

Qualitative:
generally favorable - saved study time in clinical years

Source: Ng, M. L., Bridges, S., Law, S. P., & Whitehill, T. (2013). Designing, implementing and evaluating an online problem-based learning (PBL) environment-A pilot study. *Clinical Linguistics & Phonetics*

Acknowledgement: HKU Teaching development Grant (Ng et al.) No. 10100387



HKU Case 3:
Grad. Cert. IMHSE - PBL Module
ePBL
Replacing components of traditional PBL

**Certificate in Medical and Health Sciences Education (CIMHSE),
LKS Faculty of Medicine, HKU**

PBL Module: Designers & Teachers - S.M. Bridges & L.K. Chan

Learning Outcomes:

By the end of this module, learners should be able to:

1. Engage in an inquiry-based learning process
2. Identify and critically evaluate a range of curriculum philosophies and educational principles underpinning curriculum models
3. Describe the design features for curriculum-level implementation of PBL
4. Outline the stages within the PBL process
5. Analyse the dynamics of tutor facilitated, small group learning

Inquiry-based, activity-centred design:

- Narrative structure: sequential disclosure
- Activity-based:
 - Tasks linked to problem
 - Each stage in problem unfolds via Moodle with release after submitting prior task
- Multiple virtual spaces:
 - Moodle forum; Moodle assignments; Moodle chat and announcements

Reflections:

Our thoughts as designers & facilitators

- Inquiry-based approach and structuring of tasks = increased levels of interaction than our other distance education courses
- Greater structure & scaffolding than a traditionally 'ill-defined' PBL scenario = less room for student exploration
- Asynchronous nature problematic for effective facilitation – feed via email stream; time lag



Student's thoughts (clinical teachers)

For assignment 1 and 2, they provide opportunities for me to consider a curriculum from various perspectives. I realize that teaching is a complicated process that it involves not only creation of content for teaching, but also co-operation with other colleagues for evaluation.

This course allows me to review my own teaching experiences and I understand I really need to contribute much more effort to make improvements in order to ensure my students can learn effectively with the help from different sectors of the institute. Teaching is a process involving a lot of parties, not a matter between only teachers and students.

This is definitely one of the best on-line module that I have ever participated before. This module not only equipped me with knowledge concerning with curriculum redesign and problem-based learning, also it has reconstructed my teaching philosophy on the teaching and learning process.

For me, the meaning of learner-centered has been changed. Learner are the ownership of learning and we should facilitate their learning process instead of following the traditional approach of delivering the knowledge. We should motivate them to learn through problem solving and self-directed learning. In fact, PBL could thus strengthen the weakness in this new generation and better equip themselves for the challenge in the health care system in 21st century!

December, 2014

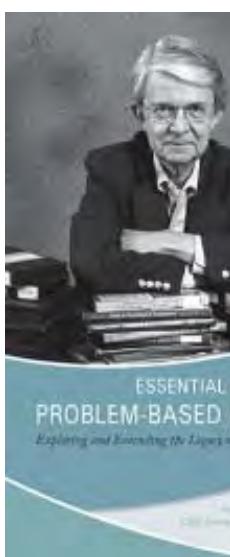


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January, 2015

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PBL.2.0: Blended learning for an interactive, problem-based pedagogy



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ABOUT THIS BOOK

Synthesizes and examines existing research on technology in medical education
Explores the theories behind the implementation of technologies in healthcare practitioner education
Presents new methodologies of incorporating technology in medical education

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