Creating an Online Learning eEnvironment for PBL - A Preliminary Investigation

The Third International Conference on Problem Based Learning in Speech Language Pathology and Audiology

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Agenda

• About the Division of Speech and Hearing Sciences of the University of Hong Kong
• The existing PBL curriculum within the Division
• The online PBL environment - The project
  ➢ Demonstration
• Q & A
Funding Support

• Teaching Development Grants (TDG) Awards for 4-Year Undergraduate Curriculum Reform 2009-2010 Central Funding
About the Division

• Division of Speech and Hearing Sciences
• Established in 1988
• The only program for training speech therapists in the region
• Commenced full PBL curriculum in 1997
• Current enrollment:
  ➢ Taught degrees:
    • BSc.: 173
    • MSc.: 8
  ➢ Research degrees:
    • MPhil + Ph.D.: 31
The PBL Transformation

For each year:

1 teacher → 40 students

1 facilitator → 8 students

1 facilitator → 8 students

1 facilitator → 8 students

Traditional Classes

PBL mode
Pre-PBL
Post-PBL
Characteristics of PBL (1)

- Focuses on students’ *learning*, not teaching
- Learning is driven by challenging, open-ended problems; there may not be one “right” answer
- Problems/cases are context specific
- Students work as self-directed, active investigators and problem-solvers in small collaborative groups (For SHS, 8 students in a PBL group); student-centered
Characteristics of PBL (2)

• Key problems/issues are identified and solution (s) is(are) agreed upon and implemented

• Teachers adopt the role as facilitators of learning, guiding the learning process and promoting an environment of inquiry
PBL Discussion
Flow of PBL

Students provided with the case/problem
Students raise learning issues related to the problem

Students search for information needed to solve/understand the problem, to address the learning issues
Students involved in discussion

Students collectively construct a concept map summarizing and abstracting the concepts they have acquired
Role of PBL Facilitator

- To facilitate PBL discussion
- To report students’ and facilitator’s comments on a problem to case manager
- To guide students to find answers to questions raised by themselves or facilitator during PBL discussion and from readings
- To guide students to select appropriate references
- CANNOT teach
PBL Curriculum

• Each year consists of two PBL blocks
• Eight problems in each block
• Each problem lasts for one week
  ➢ Raise learning issues
  ➢ Discussion
  ➢ Develop concept maps after discussion is completed
  ➢ Complete reading forms and journals
Skills Workshops

• To supplement PBL discussion
• Content of workshop related to PBL problems
• One to two workshops per week per problem
• Taught by qualified instructors (in-house or external)
Assessment of PBL Learning

• Through participation of PBL discussion
• Through reading forms and reflective journals
• Through written assignments (2 per block)
• Through exam (1 per block)
• Through skills workshop exams (2 per block)
• Evaluations: (1) online, and (2) face-to-face meeting between students and facilitator
  ➢ Mid-block
  ➢ End-block
Shots from SHS PBL Discussion
Shots from SHS PBL Discussion
Sample Concept Map from SHS
Sample Concept Map from SHS
Advantages of PBL

• It helps students develop critical thinking and creative skills
• It improves students’ problem-solving skills
• It increases students’ motivation
• It helps students learn to transfer knowledge to new situations
Problems (Limitation) with Traditional PBL

- Time and venue restrictions
  - Within the same year, all five PBL groups have to be synched. This poses a restriction on time and place.
  - All five PBL groups need to be carried out at the same time. Skills workshops are given to the entire year.
  - Demand for space is a problem.
What do we need?

• A PBL platform that allows students and facilitators to carry out PBL discussion synchronously anywhere anytime (not restricted by venue and time)

• Possible solution: Online PBL
Concept of Online PBL

• To take advantage of internet technologies
• To make use of an online PBL system that supports cross-platform communication (i.e., mac & PC); preferably web-based
• The system must allow synchronous face-to-face A/V conferencing
• It must also allow asynchronous archiving of A/V data for later retrieval (for students’ revision or training of new PBL facilitators)
Adopted Online Platform

- **Adobe Connect** was selected
- **Adobe Connect** is a web-based conferencing solution for web meetings, e-learning, and webinars.
- It supports multi-node, multi-modal synchronous communication
  - Readily available in the Faculty of Education, HKU
  - Local server → easy manipulation + faster internet from within HKU
  - Supports from both Adobe and Faculty
Design of Online PBL Project

- Randomly selected a PBL group of 8 students and a facilitator
- Carried out at beginning of Year 3 PBL (Sept 2011)
- Problems 3.1.2 - 3.1.5:
  - PRO3.1.2 - The Newly Graduated Teacher (Organic Voice Disorder)
  - PRO3.1.3 - The Young Clerk (Psychogenic Voice Disorder)
  - PRO3.1.4 - The School Principal (Dyslexia)
  - PRO3.1.5 - The Dissertation (Research Methods)
Design of Online PBL Project

• Training provided to the selected PBL students and facilitator
  ➢ Used PRO 3.1.1 - The Shopkeeper (Hearing Aids) for training

• Hands-on and training manual were provided
Training Manual

Adobe Connect Quick Start Guide

Participate in Adobe Connect Meetings

Adobe Connect is an enterprise web conferencing solution for online meetings, training and webinars used by leading corporations and government agencies. This Quick Start Guide provides you with the basics participating in an Adobe Connect meeting, virtual classroom, or webinar.

Attend an Adobe Connect meeting
1. It is recommended that you test your computer prior to attending a meeting. You can do this by going to:
2. The Connection Test checks your computer to make sure all network requirements are met. If you pass the first stage of the test, then you are ready to participate in a meeting.

MORE CONNECT

The fourth step of the Connection Test is for the Adobe Connect link in which is only required for Meeting Rooms and Presenters who download their screen. If you do not pass the test, perform the suggested actions and test the connection again.

Join meeting
1. You have likely received an email invitation with meeting access information. When the meeting time arrives, click on the link or enter the URL into your favorite web browser.
2. The meeting login screen appears. If you do not have a username or password for the Adobe Connect account, choose Enter as an attendee, type your first and last name, and click Join Room.
3. The Adobe Connect application bar and Workspace are displayed.
Group Selection
Installation and Calibration of Systems
Technical Assistance
Procedure

- Installation and testing of system on different computers
- Trial runs
- At first, used online PBL from 9 sound booths and office rooms in the Division
  - Broader bandwidth for faster connections (use of intranet)
  - Quieter - less background noise
  - Easier trouble-shooting
- Later (from PRO 3.1.3 onward) used online PBL from home
Screenshot from ADOBE CONNECT
Screenshot of the System

- Video of participants
- File sharing
- Logged in Members
- Learning issues to be discussed
- Supplementary chat room (text)
Assessment of Online PBL

Upon completion of online PBL, assessment is carried out to evaluate the value of online PBL system, and efficacy of online PBL learning

1. Scores from a written assignment and a PBL exam
   - Results not yet available

2. A short self-administered questionnaire
   - Anonymous
   - Administered at end of online PBL project
Responses to Questionnaire

Please rate your overall satisfaction regarding the online system.

- Very Satisfied
- Satisfied
- Neutral
- Dissatisfied
- Very Dissatisfied

Bar chart showing the distribution of responses.
Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree

- Online system worked well
- System was easy to set up on my computer
- System worked well under the network condition at home
- I would recommend this system to other students
Responses to Questionnaire

Did the system meet your requirements for online learning?

- Yes
- No
Responses to Questionnaire

Please describe any problems you have met with the online PBL system.

- *Netvigator (internet connection) is slow.*
- *Some students may lag in online system because of network connecting speed.*
- *Noise in the room, but this problem was solved after closing windows.*
- *Some buzzing noise is present during online PBL.*
Please rate your overall satisfaction regarding the online PBL class.
Responses to Questionnaire

Do you agree the online system improves your study in PBL?
Responses to Questionnaire

Did the online PBL system help you save study time?

- Yes: 8
- No: 0
Responses to Questionnaire

• If yes, specify what and how much time it was saved.
  ➢ Students unanimously indicated that online PBL saved them a lot of travel time.
  ➢ Some mentioned that it saved them as much as three hours or more of travel time!
Responses to Questionnaire

- Online PBL is more relaxed than traditional PBL
- Students can easily be distracted by environmental factors
- No classroom atmosphere with online PBL
Responses to Questionnaire

- The system increased my interest in PBL class
- Having used the system, I feel that I learned more
- The video recording provided by online system contributed to my learning
- Overall, the system meets my expectations
Responses to Questionnaire

Which form of PBL will you choose for your next PBL class?

Online PBL

Traditional PBL
Strengths of the System

• Fast and stable connections
• Support multimodal communication (voice, text, graphics, etc.)
• High compatibility; cross platform (web-based)
• Support simultaneous file sharing
Problems with the System

• Lack of multilingual support; does not support double-byte characters
  ➢ *Chinese characters not possible*

• When developing the concept map, modification of concept map by multiple users not possible (too slow)

• When viewing archives, one needs to always start from the beginning of each session

• Archives only available in *flv* format

• Screen may appear jerky when number of participants is increased
Future Research with Online PBL

• Try to adopt a hybrid model - more than one members at one node
  ➢ Reduce the bandwidth requirement

• Try online PBL discussion with connections from overseas
Demonstration of Online PBL
PBL in the Future
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Q & A