



Final Report of Project

Project No.: EMB/QEE/2002/0307
RECEIVED

16 MAR 2006

E.M.B.
Government Secretariat

Part A

Project Title: Problem-based Learning in the Field Environment

Name of Organization/School: The University of Hong Kong

Project Period: From September 2003 (month/year) to December 2005 (month/year)

Part B

*Please read the **Guidelines to Completion of Final Report of Quality Education Fund Projects** before completing this part of the report.*

Please use separate A4-size sheets to provide an overall report with regard to the following aspects:

1. Attainment of objectives
2. Project impact on learning effectiveness, professional development and school development
3. Cost-effectiveness – a self-evaluation against clear indicators and measures
4. Deliverables and modes of dissemination; responses to dissemination
5. Activity list
6. Difficulties encountered and solutions adopted

Annex

Table 1: Attainment of Objectives

Objective statement	Activities related to the objective	Extent of attainment of the objective	Evidence or indicators of having achieved the objective	Reasons for not being able to achieve the objective, if applicable
To prepare students to become progressive problem solvers and authentic knowledge constructors	<ul style="list-style-type: none"> 8 PBL field studies workshops for students Use of PBL in life subject-based curriculum in 2 schools Use of PBL for gifted education section students 	Fully achieved	<ul style="list-style-type: none"> Participating student s' evaluation Number of affected students Teachers' feedbacks 	
To promote Problem-based learning methodology among secondary schools as an effective learning method	<ul style="list-style-type: none"> 15 public seminars 12 PBL field study workshops for teachers Use of PBL in life subject-based curriculum in 2 schools Teachers development workshops at 7 schools Use of PBL for gifted education section and Liberal Studies Booklets and CD 	Fully attained	<ul style="list-style-type: none"> Participating teachers' evaluation Number of affected teachers Demand for using the method for teachers' professional development QEF staff and subcommittee visit reports 	

Table 2: Budget Checklist

Budget Items (Based on Schedule II of Agreement)	Approved Budget (a)	Actual Expense (b)	Change [(b)-(a)]/(a) +/- %
Staff Cost	\$364,000.00	\$365,334.97	+0.37%
General Expenses	\$390,800.00	406,098.88	+3.9%
Equipment	\$8,000.00	\$8,000.00	0%
Services	\$84,000.00	\$87,423.00	+4.08%

Table 3: Dissemination Value of Project Deliverables

Item description (e.g. type, title, quantity, etc.)	Evaluation of the quality and dissemination value of the item	Dissemination activities conducted (e.g. mode, date, etc.) and responses	Is it worthwhile and feasible for the item to be widely disseminated by the QEF? If yes, please suggest the mode(s) of dissemination.
Three teacher manuals on “Problem-based Learning in the Field Environment” and “project-formulati on Techniques”	High quality and very useful for school teachers	<p>15 public seminars (as indicated in activities list of full report).</p> <p>Distributed for free to all schools in Hong Kong; Many teachers indicated that they would use the materials as try-out</p> <p>Distributed for free to all Liberal Studies Teachers and geography teachers</p> <p>400 sets reserved for QEF Secretariat for sale at Book Fair 2006</p>	<p>Yes. 400 sets have already been reserved by QEF Secretariat for distribution</p> <p>A seminar has been arranged on April 27 for disseminating the project results</p>
One CD-ROM on “Problem-based Learning in the Field Environment”	“Problem-based Learning in the Field Environment”	<p>Distributed for free to all schools in Hong Kong; Many teachers indicated that they would use the materials as try-out</p> <p>Distributed for free to all Liberal Studies Teachers and geography teachers</p> <p>400 sets reserved for QEF Secretariat for sale at Book Fair 2006</p>	Same as above

Table 4: Activity List

Types of activities (e.g. seminar, performance, etc.)	Brief description (e.g. date, theme, venue, etc.)	No. of participants				Feedback from participants
		schools	teachers	students	others (Please specify)	
Public Teaching Development Seminar	27/11/2003 , HKU Topic: Problem-Based Learning (PBL) in Secondary Schools Speakers: Prof L.P. Samaranayake Dr W.K. Leung (Faculty of Dentistry, HKU)		105			Summarised in Appendix 2 of full report.
PBL Field Camp	31/1/2004- 1/2/2004 Lai Chi Chong Caritas Camp, Sai Kung		15			
PBL Field Camp	13-14/3/2004 Lai Chi Chong Caritas Camp, Sai Kung		15			
Teachers Development Seminar	24/3/2004 Yew Chung Intern. School		30			
PBL Field Camp	23-24/4/2004 Lai Chi Chong Caritas Camp, Sai Kung		24			
Seminar	30/4/2004 HK Federation of Education Workers		58			
Teachers Development Seminar	4/5/2004 Kowloon Technical School		55			

This form/guidelines can be downloaded from the QEF webpage at <http://www.info.gov.hk/qef/>

Seminar	26/6/2004 PBL Field Studies Ho Koon Natural science Ed. Centre		15	76		
Seminar	3/7/2004 PBL Field Studies Ho Koon Natural science Ed. Centre		15	74		
Project presentation	21/7/2004 HKU		30	150		
Teachers Development Seminar	4/11/2004 Sam Yuk Secondary School		33			
Seminar	29/12/2004 EMB Gifted Education Centre EMB Seminar: PBL, critical thinking skills and the gifted		118			
Seminar	18/12/2004 PBL in the Field Environment HK Federation of Education Workers		45			
PBL Field Camp	11/12/2004- 13/12/2004 Pak Lap Village		21			
Seminar	6/1/2005 PBL in the Field Environment HK Federation of Education Workers		45			
Teachers Development Seminar	8/1/2005 Kowloon Technical School		23			



PBL Field Camp	15/1/2005 Tai Mo Shan Cho Kung Tam Recreational Centre		45			
PBL Field Camp	22/1/2005 Pak Lap Village		10	20		
PBL Field Camp	29/1/2005 Tai Mo Shan Cho Kung Tam Recreational Centre		45			
PBL Field Camp	19-26/2/2005 Tai Mo Shan Cho Kung Tam Recreational Centre		60	240		
Seminar	5/3/2005 EMB Gifted Education Centre EMB Seminar: PBL, critical thinking skills and the gifted		10	25		
PBL Project	9/3/2005 School Project for Life Education Kowloon technical School		23	200		
Seminar	12/3/2005 invited talk by Aristo Publisher PBL in the Field Environment Shangri-la Hotel, Kowloon		80			
Seminar	12/3/2005 PBL in the Field Environment QEF Exposition Convention and Exhibition Centre		30			

Seminar	16/3/2005 workshop PBL in the field environment HK Teachers Centre		20			
PBL Field workshops	4/4/2005 seminar followed by students PBL field programme Lok Tao Secondary School		15	32		
Seminar	6/4/2005 PBL workshop Designing problem statement for Liberal Studies EMB, Curriculum Resources Centre, EMB		30			
Teachers Development Seminar	29/4/2005 United Christian College		61			
PBL Field workshops	30/4/2005 seminar followed by students PBL field programme Good Hope Secondary School & Pak Lap Village		2	25		
PBL in Geography	5-6/2005 PBL in teaching AL geography St Stephen College		3	20		
Teachers Development Seminar	4/6/2005 Po Kok Primary School		22			



Seminar	6/2005, HKU Seminar on Modes of Field Studies for EMB Geography section		~100			
PBL workshop	4/76/2005, HKU PBL in the field environment Seminar PBL in the field environment		45			
PBL Field workshop	12-13/7/2005 Sheung Wan PBL in the field environment field programme		35			
PBL Field workshop	14-15/7/2005 Sheung Wan PBL in the field environment field programme	21	28	152		
Seminar	24/9/2005 PBL and the New Curriculum Organized by HKU General Ed and Lingnan College, Tsuen Wan		~100			
Seminar	2/12/2005 PBL in the Field Environment HK Federation of Education Workers		60			
Teachers Development Seminar	18/1/2006 Tin Ka Ping Middle School		13			

**Final Report
on QEF Project**

**‘Problem-Based Learning in the Field
Environment’**

(Ref.: EMB/QEF/2002/0307)

**Department of Earth Sciences
The University of Hong Kong**

Project Leader:
Dr Chan Lung Sang

March 1, 2006

QEF Project: Problem-Based Learning in the Field Environment

Project Team

Chief Advisor:

Prof. John Malpas, Pro-Vice Chancellor, The University of
Hong Kong

Project Director:

Dr Chan Lung Sang, Dept. of Earth Sciences, HKU

Deputy Director:

Ms Loretta Ho, Education, HKU

Programme Officer:

Mr Sin Wai Pun, HKU

Steering Committee:

Dr WK Leung, Dentistry, HKU

Mr So Chun Kit, St. Stephen College

Ms Priscilla Chan, Centre for the Advancement of University
Teaching, HKU

Mr Charles Liu, Curriculum Development Institute, EMB

Ms Tracy PS Leung, St Mary's Church Middle School

Assessor:

Mr Philip Chan, HK Federation of Education Workers

Project Consultants:

Prof. LP Samaranayake, Dean, Faculty of Dentistry, HKU

Dr. David Johnston, Director, Centre for the Advancement of
University Teaching, HKU

Prof. David Kwan, Faculty of Medicine, McMaster University,
Canada

Executive Summary

This report is a summary of the QEF project 'Problem-based learning in the field environment' awarded to Department of Earth Sciences, The University of Hong Kong from September 2003 to December 2005.

The project has been successfully completed. In summary, the following points can probably be regarded as tokens of recognition or the success of the project.

- Over 1200 teachers attended various forms of activities organized under this project; the number has far exceeded our original targeted number of 60;
- The learning method we devised may now be considered as the model learning for Independent Enquiry Study in the new Liberal Studies course. EMB has invited the Project Director to serve on the Working Group on Independent Enquiry Study for the new curriculum. Over 5000 teachers may be using this method in guiding student projects annually in the new 3-3-4 curriculum in the future;
- We have been invited by many schools as well as several divisions of the Education and Manpower Bureau (EMB) to organize workshops for teachers.
- Three booklets and a CR-ROM were published and freely distributed to all secondary schools in Hong Kong

1. Attainment of Objectives

Objective statement

The Consultative Report on the Education Reform in Hong Kong has highlighted a specific need in the new curriculum design, that is, the future education should encourage cross-curricular and inquiry-based approaches to learning so as to help students develop self-learning and life-long learning attitude. The goals of this QEF project are to promote the use of Problem-Based Learning (PBL) among secondary schools as an effective learning method in the field environment, and to prepare students to become progressive problem solvers and authentic knowledge constructors with a mind of inquiry. The project was designed to provide teachers with the opportunity to learn and experience the process first-hand, and to develop exemplars for schools in guiding field learning.

Activities related to the Objective

The following activities have been organized by the Project Team.

- (1) Research and background studies
- (2) Seminars
- (3) Web page
- (4) PBL Field Training Workshops for Teachers
- (5) PBL Field Training Workshops for Students
- (6) Curriculum-integration PBL Field workshop
- (7) Workshop for EMB Gifted Education
- (8) Workshop for EMB Liberal Studies Section
- (9) School Development Workshops
- (10) Publication and dissemination seminars

(1) Research

The problem-based learning (PBL) pedagogy has not been extensively used in secondary schools in Hong Kong. We conducted thorough investigations on case histories on the application of PBL in school setting overseas, as well as the use of PBL in the field environment. Studies on the principles and application of PBL were also carried out by the project members.

(2) Public Seminars

A total of 13 public seminars on the project were given. These were open to all participants. Over 600 school teachers attended the seminars. In addition, two seminars were given to Master of Education and Diploma of Education students at The University of Hong Kong.

(3) Web page

A website on the project was set up. Activities and deliverables related to the project were accessible through the web site.

(4) PBL Field Training Workshops for Teachers

A total of 12 field training workshops for teachers were organized. These field programmes were open to all school teachers in Hong Kong. The programme consisted of three components: an introductory seminar, a teachers' training camp and a students' training camp. A certificate of completion was awarded to the teacher who completed the programme, with a recommended 30 hours equivalent of continuous professional development. Over 240 teachers attended the field activities.

(5) PBL Field Training Workshops for Students

Eight field trips were organized for students. Teachers who attended the training workshops would apply the technique to a group of students. Over 500 students attended the field activities.

(6) School Teacher Development Workshops

We organized staff development seminars for individual schools to encourage more teachers from the same schools to be involved in the QEF project. Since the problem statements in PBL are cross-disciplinary in nature, teachers of different subjects can collaboratively conduct a number of student groups such that knowledge of different subjects can be equally addressed throughout the whole course. This is found to be greatly beneficial for the adoption of PBL in secondary school curriculum. We catered to the following schools teacher development workshops:

- Yew Chung International School
- Kowloon Technical School
- Sam Yuk Secondary School
- Lok Tao Secondary School
- United Christian College
- Po Kok Primary School
- Tin Ka Ping Middle School

Over 260 teachers benefited from these school development workshops. We also persistently urged the participated teachers to organize PBL activities for students in their schools. We continued to receive requests from schools for our assistance to run staff development workshops for their teachers. Due to limited time and resources, however, we have declined many of these requests.

(7) Implementing Subject-based PBL in School

We assisted Kowloon Technical School to implement PBL in F.2 Life Education for 9 weeks and St. Stephen College in F.6 Geography for 4 weeks. Both were in the form of field-study projects. We provided academic support throughout the process, recorded the progress and assisted in both teachers and students appraisal. A total of 220 students participated in the subject-based PBL activities.

(8) Workshop for EMB Gifted Education

We presented a workshop for the Gifted Education Division of EMB. A total of 16 teachers attended the seminar and 10 participated in the field activities.

(9) Workshop for EMB Liberal Studies Section

We presented a workshop for the Liberal Studies Division of EMB. A total of 30 teachers attended the seminar and the field activities. The Project Director, Dr LS Chan has also been invited to serve on EMB's Liberal Studies –IES Working Group because of the experience generated from the project.

(10) Publication and dissemination seminars

Three booklets and one CD on the project have been produced. They were freely distributed to all secondary schools in Hong Kong.

Extent of attainment of Objectives

We believe the project has attained and exceeded the original objectives based on the following tangible and intangible measures.

- Tangible indicators: actually numbers of teachers and students benefited from the project greatly exceed the original numbers targeted
- Intangible indicators-additional accomplishments beyond the scope of the original proposal:
 - (1) Consideration of using developed method in the new LS curriculum;
 - (2) Request by schools to introduce the learning method for school staff development workshops;
 - (3) Adoption of learning method to be used as enhancement technique for gifted students.

Evidence and Indicators

The following can be taken as evidence for success of this project.

- (1) Assessment from participants (Appendix 2).
- (2) Visit reports from QEFstaff and Monitoring Subcommittee (Appendix 3)
- (3) Report from external assessor (Appendix 4)
- (4) Number of beneficiaries
- (5) Possible application in the new curriculum
- (6) Invitation to give school and teachers training workshops

Assessment from participants are all positive. In particular, the QEF subcommittee has highlighted in its visit report that the learning strategies devised from our project **'could serve for model learning to train Liberal Studies teachers in the New Secondary**

School Curriculum. The number of teachers attended our seminars and workshops on problem-based learning has exceeded our original targeted number of 60. The learning method we devised will now be considered as the model learning for the independent enquiry studies in the new liberal studies course. If so, as many as 5000 teachers a year will be using this method in guiding student projects annually in the new 3-3-4 curriculum in the future.

Problems encountered. During the initial stage of the project, we had difficulties with recruiting teachers to participate. The reason for the reluctance was probably because the pedagogy was new and unfamiliar to them. To overcome the difficulty, we collaborated with HKFEW to organize a natural science exploration award activity, requiring participating teachers to employ the PBL approach in a field-based project with students. After a year, when the programme was made known to many teachers and EMB divisions, we received a lot of requests from schools to organize for them teachers development workshops. This is a problem of the opposite nature because the number of requests was beyond our resources and time could permit us.

Project Impact

(a) Learning Effectiveness

Assessment from participating students indicated that the method devised from this project is effective and serves to broaden students thinking skills. Such claims are substantiated by the following:

- Video footage of assessment of participating students (CD in Appendix 6)
- EMB gifted education section's consideration to use the method as an learning enhancement technique
- EMB Liberal Studies section's consideration to promote the method to LS teachers.

(b) Professional Development

Based on the feedbacks of the participating teachers, the learning strategy is suitable for professional development. The fact that we have received requests from EMB Liberal Studies section to use the method to train LS teachers is evidence for the suitability of the method in professional development.

(c) School Development

Feedbacks from staff development workshops we conducted are all positive and encouraging, indicating the efficacy of the project.

Cost Effectiveness

A significant learning pedagogy devised from the previous QEF project is the **project-formulation technique** that can potentially be used by teachers to guide a large group of students to generate for each in the group a study project title, in a truly student-centred manner. If the techniques can be transferred to school teachers, it will remediate the anxiety of teachers over their future responsibility to supervise large number of IES projects.

The actual number of long-term beneficiaries will likely be much large than the number of participating teachers during the project period. Since an estimated 120,000 students along with 5000 teachers will be involved in IES projects concurrently each year in the new curriculum. An enormous number the teachers and students will plausibly benefit from the project.

Given the potentially large number of students and teachers who may eventually benefit from the project, the cost-effectiveness of this project is readily justifiable.

Deliverables and Modes of Dissemination

Public dissemination

(1) Public seminars

A total of 13 seminars have been delivered. A dissemination seminar is also scheduled on April 27, 2006 by the QEF Secretariat.

(2) Publications

To promote the PBL methodology, we have published four sets of material (3 booklets and 1 interactive CD Rom attached in appendix):

1. Problem-based Learning in the Field Environment reference template (野外形式之問題導向學習參考範本)
2. Problem-based Learning in the Field Environment reference template (English version)
3. Student-centered IES Project-formulation Technique (學生為本專題研習建題技巧)
4. Problem-based Learning in the Field Environment – interactive CD Rom

Appendices

1. List of organized activities
2. Participants' Evaluation of the Project Activities
3. Assessment Report by Assessor
4. Visit reports by QEF staff and subcommittee
5. Letters of acknowledgement
6. Booklets and CD produced

Appendix 1. List of Organised Activities

	Activities	Venue	Participants
27 th November 2003	Public Teaching Development Seminar Topic: Problem-Based Learning (PBL) in Secondary Schools Speakers: Prof L.P. Samaranayake Dr W.K. Leung (Faculty of Dentistry, HKU)	The University of Hong Kong	105 secondary school principals and teachers
31st January to 1st February 2004	PBL Field Camp	Lai Chi Chong Caritas Camp, Sai Kung	15 secondary school teachers
13th to 14th March 2004	PBL Field Camp	Lai Chi Chong Caritas Camp, Sai Kung	15 secondary school teachers
24th March 2004	Staff Development Seminar (school-based)	Yew Chung International School, Kowloon	30 secondary school teachers
23rd to 24th April 2004	PBL Field Camp	Lai Chi Chong Caritas Camp, Sai Kung	24 secondary school students

30th April 2004	Public Teaching Development Seminar	Hong Kong Federation Education of Workers (HKFEW)	58 secondary school principals and teachers and officers from Education and Manpower Bureau
4th May 2004	Staff Development Seminar (school-based)	Kowloon Technical School, Cheung Sha Wan	55 secondary school teachers
29 th May 2004	Natural Sciences Exploration Award (NSEA) 2004 Opening Ceremony	Hong Kong Federation Education of Workers (HKFEW)	30 secondary school teachers and 150 secondary school students
26 th June 2004	Natural Sciences Exploration Award (NSEA) 2004 Field Camp	Ho Koon Natural Sciences Education Centre, Tai Mo Shan	15 secondary school teachers and 76 secondary school students
3 rd July 2004	Natural Sciences Exploration Award (NSEA) 2004 Field Camp	Ho Koon Natural Sciences Education Centre, Tai Mo Shan	15 secondary school teachers and 74 secondary school students

21 st July 2004	Natural Sciences Exploration Award (NSEA) 2004 Project Presentation	The University of Hong Kong	30 secondary school teachers and 150 secondary school students
4 th November 2004	Staff Development Day Sam Yuk Secondary School Speaker: Dr. Chan Lung Sang Mr. Chan Wing Keung	Sam Yuk Secondary School	33 school teachers
29 th December 2004	EMB seminar - Problem-based learning, critical thinking skills and the gifted Speaker: Dr. Chan Lung Sang Mr. Chan Pui Tin Mr. So Chun Kit Mr. Chan Wing Keung Ms. Leung Pik Sai	EMB gifted education center	118 school teachers
11 th and 13 th December 2004	PBL field camp Seminar speaker: LS Chan	Pak Lap village	21 school teachers, staffs and dip/cert ed students
18 th December 2004	PBL Public seminar Speaker: Dr. Chan Lung Sang Mr. Chan Wing Keung	Hong Kong Federation of Education Workers	45 secondary and primary school teachers

6 th January 2005	PBL Public seminar Speaker: Dr. Chan Lung Sang Mr. Chan Wing Keung	Hong Kong Federation of Education Workers	45 secondary and primary school teachers
8 th January 2005	Staff Development workshop Speaker: Mr. Chan Wing Keung, Mr. Sin Wai Pun	Kowloon Technical School	23 secondary school teachers
15 th January 2005	PBL training camp (for teachers) Seminar speaker: LS Chan	Tai Mo Shan, Cho Kung Tam Recreational village	45 secondary school teachers
22nd January, 2005	PBL field camp (for teachers and students Seminar speaker: LS Chan	Pak Lap Village	3 school teams (3 secondary school teachers and 20 students) and 1 teachers team (7 teachers and EMB staffs)
29 th January 2005	PBL training camp for primary school teachers	Tai Mo Shan and Tso Kung Tam recreation village	45 school teachers
19, 26 th February 2005	PBL training camp for secondary school students Seminar speaker: LS Chan	Tai Mo Shan and Tso Kung Tam recreation village	60 secondary school teams(each team: 1 teachers and 4 students)

5 th March 2005	<p>EMB Gifted Education- PBL, critical thinking skills and the gifted, training workshop for students</p> <p>Person in charge: Mr. Leung Kin Tak</p> <p>Speakers: LS Chan, Max So and Tracy PS Leung</p>	<p>EMB Gifted Education Centre Tai Mo Shan, Chuen lung village</p>	<p>5 school team (total: 10 teachers and 25 students)</p>
9 th March 2005	<p>Kowloon Technical School F.2 Life Education</p> <p>Person in charge: Mr. Tam Kwok Sun (KTS) Mr. Sin Wai Pun (HKU)</p>	<p>Kowloon Technical School</p>	<p>23 teachers; 200 students</p>
16 th March 2005	<p>PBL workshop (co-organize with EMB) Speakers: LS Chan and Loretta Ho</p>	<p>Hong Kong Teachers' Centre</p>	<p>20 teachers</p>
4 th April 2005	<p>Lok Tao Secondary School: PBL field camp for students Seminar by Dr Chan LS</p>	<p>Lok Tao Secondary School and Pak Lap Village</p>	<p>15 teachers and 32 students</p>
6 th April 2005	<p>PBL Workshop: Designing problem statement for liberal studies (co-organize with EMB, Liberal studies)</p> <p>Person in charge: Mr. Liu Kwok Hung, Charles (EMB)</p>	<p>Curriculum Resources Centre, EMB</p>	<p>30 teachers</p>

29 th April 2005	Staff Development workshop Speaker: Mr. Chan Wing Keung, Mr. Sin Wai Pun	United Christian College	61 secondary school teachers
30 th April 2005	Good Hope Secondary School: PBL field camp for students	Good Hope Secondary School and Pak Lap Village	2 teachers and 25 students
May-June 2005	St. Stephen College F.6 AL Geography : Soil Mr. So Chun Kit (SSS) Miss Loretta Ho (HKU)	St. Stephen Secondary School	20 F.6 Geography students
21 st May 2005	Natural Science Exploration Award – Presentation and Prize giving ceremony	HKU	16 school teams and public audiences
4 th June 2005	Staff Development workshop Speaker: Mr. Chan Wing Keung, Mr. Sin Wai Pun	Po Kok Primary School	22 Primary school teachers
June 2005	EMB Geography Section seminar Field Studies	HKU	>100

4 th July, 2005	PBL Public Seminar Speaker: Dr. Chan Lung Sang Mr. Sin Wai Pun Ms. Loretta Ho	HKU	45 Secondary school teachers and principal
12 th to 13 th July 2005	PBL training camp for secondary school teachers - Sheung Wan Field Study	HKU and Sheung Wan	35 school teachers
14, 15 th July 2005	PBL training camp for secondary school students - Sheung Wan Field Study	HKU and Sheung Wan	21 secondary school teams(total : 152 secondary school student and 28 teachers)
October 2005	PBL Public seminar HKU General Ed Unit/Lingnan College Speaker: Dr. Chan Lung Sang	Tsuen Wan	100 teachers
2th December 2005	Mr. Chan Wing Keung	Hong Kong Federation of Education Workers	60 secondary and primary school teachers
January 18 2006	Staff Development workshop	Yan Oi Tang Tiun Ka Ping Middle School:	13 secondary school teachers
Feb 2006	Seminar on Project HKU M Ed class	HKU	20 teachers
March 2006	Seminar on Project HKU Dip Ed class	HKU	32 students
9-12/2005	Production of booklets and CD		

Summary of activities

	Activity	Frequency	No. of participants
1	Public seminars	15	675 teachers
2	Field camp for teachers	12	243 teachers
3	Field camp for students	8	516 students
4	Staff development workshops	7	268 teachers
5	Natural Science Exploration Award (2004) Natural Science Exploration Award (2005)	2	15 school teams; 76 students 90 school teams; 360 students
6	Kowloon Technical School , F.2, Life Education PBL course (last for 9 weeks)	1	23 teachers; 200 students
7	St. Stephen College, F.6, Geography PBL tutorial (last for 4 weeks)	1	3 teachers; 20 students
8	Quality Education Fund Expo	1	Over 800 visitors
9	Workshops co-organized for EMB	3	Over 230 teachers

Appendix 2. Participants' Evaluation of the Project Activities

The following is an account of the project's effectiveness based on the participants' evaluation to different project activities.

I. Participants' Evaluation to Different Project Activities

A. Summary of assessment on Public Teaching Development Seminar

Activity One

Date: 27th November 2003 (Thursday)

Time: 2:00 p.m. - 4:30 p.m.

Venue: T6, Meng Wah Complex, HKU main campus

No. of people attended: 105

No. of form received: 73

Evaluation Items	Agree	Neutral	Disagree
The seminar was well-organized.	63 (86.30%)	9 (12.33%)	1 (1.37%)
The speakers were knowledgeable and effective.	50 (68.49%)	7 (9.59%)	0 (0%)
The seminar was useful.	41 (56.16%)	32 (43.84%)	0 (0%)
The seminar has enhanced my understanding of PBL.	58 (79.45%)	15 (20.55%)	0 (0%)
The PBL approach can be adopted in secondary schools.	36 (49.32%)	26 (35.62%)	11 (15.075)
I will consider using PBL in my classes / school activities.	38 (52.05%)	28 (38.36%)	7 (9.59%)

Activity Two

Date: 4th July 2005

Time: 4:30p.m. – 6:00p.m.

Venue: P1 Theatre, Ming Wah Complex, HKU

Participants: 56

Questionnaires Received: 34

評估項目	十分同意	同意	不同意	十分不同意
講者講解清楚	29 (85.29%)	5(14.71%)	0 (0%)	0 (0%)
講座對日後的工作有幫助	26 (76.47%)	8 (23.51%)	0 (0%)	0 (0%)
講座能達致預期目標	29 (85.29%)	5(14.71%)	0 (0%)	0 (0%)
講座內容切合主題	29 (85.29%)	5(14.71%)	0 (0%)	0 (0%)
場地安排令人滿意	15 (44.12%)	14(41.18%)	5(14.71%)	0 (0%)
日期和時間安排令人滿意	20 (58.82%)	14 (41.18%)	0 (0%)	0 (0%)
對是次講座感到滿意	26 (76.47%)	8 (23.51%)	0 (0%)	0 (0%)

B. Summary of assessment on School Development Seminar

Activity

Date: 8th January 2005

Time: 9a.m. -- 12 noon

Venue : Kowloon Technical School

Participants: 23

Questionnaires received: 16

評估項目	十分同意	同意	不同意
我對是次工作坊感到滿意	62.50%	37.50%	0.00%
是次工作坊的目標可以達致	56.25%	43.75%	0.00%
是次工作坊的內容編排，切合主題	75.00%	25.00%	0.00%
總的來說，講者講解清楚，整體表現有效	81.25%	18.75%	0.00%
是次工作坊會對你的工作有用或有幫助	68.75%	25.00%	6.25%
你滿意是次工作坊的場地安排	62.50%	37.50%	0.00%
你滿意是次工作坊的日期和時間安排	37.50%	56.25%	6.25%

The following is a summary of teachers' views towards PBL after the workshop.

Pros:

- 讓學生主動學習，自發地尋找知識。但先決條件是要學生的積極參與作為配合。
- 富啟發性及趣味性。
- 學生須主動尋找知識及設計問卷，能增加同學的自信。
- 鼓勵師生終生學習。
- 學生可自選學習目標，從而擴闊知識領域。

Cons:

- 如學生拒絕發言或完全沒有能力去發掘事實或提出假設，老師可能需要作出較多的引導，但這未知會否違背了作為 *Facilitator* 的角色。
- 學生未必合作。
- 花時間較多，難以控制課程進度。
- 導師也未能掌握其中的巧妙。
- 師生比例不足。

C. Summary of assessment on PBL field camp

Activity One

Date: 31st January – 1st February 2004

Venue: Lai Chi Chong, Sai Kung

Participants: 15 teachers

Activity Two

Date: 13th March – 14th March 2004

Venue: Lai Chi Chong, Sai Kung

Participants: 15 teachers

Summary of Teachers' Evaluation

Five questions in total were asked on participants' new understanding on PBL and comments to the program. Their viewpoints are summarized as below.

Q1: Among different activities during the field camp, what interests me most?

Participating teachers' answers fell into two categories, namely, group exploration and fieldwork. Their viewpoints are summarized as below:

a. Group Problem Statement Analysis

1. Group exploration encouraged a conglomeration of different viewpoints, resulting in interaction and conflict of ideas.
2. During the group discussion, the PBL group had to derive consensus from different points of view.

b. Group Fieldwork

1. During fieldwork, participant acted as a detective, taking an adventurous trip to Ms Ho's house with curiosity.
2. The field environment was radically different from what participants previously imagined and what participants inferred from the map.
3. Participants could acquire first-hand information through field observations and collection of data.
4. Learning process became more lively and interesting in the context of real life.
5. Ideas became more divergent during the course of field exploration.

Q2: What are some "successful" experiences that I have obtained in going through the PBL activities?

Participating teachers pointed out that:

1. I only got the real picture only when we went to the field.
2. I could act as a student to learn, without any rigid learning syllabuses.
3. I have learned PBL processes before but this was the first time to put it into practice.
4. I was working as a recorder in the PBL group. At the beginning, it was quite

difficult to take records as ideas were brainstormed from group members in a much disorganized manner. However, this became easier when ideas were converged, thanks to the guidance offered by the facilitator.

Q3: *What are some "bad" experiences that I have come across in going through the PBL activities?*

Participating teachers considered that:

1. At the very beginning, we were once unable to focus on the main ideas and decide what we should do.
2. We were not familiar with the process of field studies.
3. At the beginning, it was difficult to feel comfortable with a new group of people or feel free to offer ideas. Ideas were dried up occasionally during group exploration.
4. There were too many leaning issues for a single problem that I found it hard to choose only one or two and leave the others behind.

Q4: *What have I learned about PBL?*

Participating teachers pointed out that:

1. We have to learn to accept group members' opinions and to offer reflections.
2. Interaction among members is necessary. Silence will only lead to a waste of time!
3. A very good experience which foster ideas and techniques on problem solving and communication.
4. Providing real-life situation and real-life environment will make learning more stimulating.
5. The greatest challenge is how to set a meaningful/testable/doable problem statement.
6. There is no definite ways to interpret the problem.
7. If the research topic is too broad, students will feel frustrated.
8. We always pursue "student-centred" learning method, so why don't we put PBL into practice in secondary schools? I am sure it will work.
9. How to stimulate curiosity is an important issue.
10. Exploring facts and ideas is a skill that can be developed.
11. Participants can take in a role (or roles) they normally don't perceive themselves in.
12. Establishing a non-threatening environment is important.
13. PBL encourages clear thinking which benefits everyone.
14. "Learning to learn" is the key to success and teachers ourselves should serve as an example.
15. I have learned the theory of PBL and how to adopt PBL in schools.
16. Although our group was not knowledgeable in our proposed hypothesis, the learning process is far more important than outputs.
17. I have obtained a better understanding and a clear conception on the role of PBL facilitators.
18. I have realized the learning processes and difficulties encountered in PBL.

Q5: *What are the considerations of adopting PBL in schools?*

Participating teachers claimed that:

1. Students have to be adequately well-briefed and well-prepared.
2. PBL needs collaboration of colleagues teaching other subjects.
3. Time control and class size.
4. Available resources in schools.
5. Parent supports and school supports.
6. No pre-set problems for students.

Conclusions

From the teachers' written response to the questionnaire, it is noted that the participating teachers in general showed changes in their understanding on PBL through first-hand participation. Prior to the PBL field camp, although they generally recognized the advantages of PBL curriculum, they acknowledged that:

1. Their knowledge on PBL remained at the theory level.
2. They commonly lacked a practical experience of PBL.
- 3.

However, subsequent to the involvement in the field camp, through continuous reflection during the course, they not only recognized a number of advantages of PBL that were not anticipated before, but also acquired a first-hand experience of:

1. PBL practical procedures
2. Design of problem statement
3. Organization of learning issues
4. Sequencing of learning issues
5. Cautions of PBL adoption in schools
- 6.

Such a concrete knowledge of PBL adoption is imperative to teachers who will establish their PBL student groups in their own schools. Therefore fundamental PBL training for teachers and hence the education community is in need.

Activity Three

Date: 22nd January 2005

Venue: Pak Lap Village, Sai Kung

Teachers' Evaluation

Participants: 7

Questionnaires received: 7

評估項目	十分同意	同意	不同意
我對是次工作坊感到滿意	100.00%	0.00%	0.00%
是次工作坊的目標可以達致	100.00%	0.00%	0.00%
是次工作坊的內容編排，切合主題	100.00%	0.00%	0.00%
總的來說，講者講解清楚，整體表現有效	100.00%	0.00%	0.00%
是次工作坊會對你的工作有用或有幫助	85.71%	14.29%	0.00%
你滿意是次工作坊的場地安排	100.00%	0.00%	0.00%
你滿意是次工作坊的日期和時間安排	100.00%	0.00%	0.00%

The following is a summary of teachers' views towards PBL after the workshop.

Pros:

- *It is a effective mean to let students involving in learning across various subjects.*
- *It is student-centred, dynamic and interesting learning method, students can develop various generic skills.*
- 很自由，印象深刻、具體。
- 應該由小學或初中開始實行 PBL。
- 學生能靈活運用知識。

Cons:

- *Difficult to set a good problem statement.*
- *Sometimes the focus is deviated during the investigation.*
- 有很多客觀限制，例如學生人數、時間。
- 可能失去個別科目的特色。
- 學生不知如何發問，或不懂觀察環境。
- 與公開考試內容無關。
- 從考察現場不能得到某些硬資訊。

Student Evaluation: Group One

Group : St. Catherine Girls' School – F.6 (Miss Wong)

Participants : 6

Questionnaires : 6

評估項目	十分同意	同意	不同意
我對是次工作坊感到滿意	100.00%	0.00%	0.00%
是次工作坊的目標可以達致	100.00%	0.00%	0.00%
是次工作坊的內容編排，切合主題	100.00%	0.00%	0.00%
總的來說，講者講解清楚，整體表現有效	100.00%	0.00%	0.00%
是次工作坊會對你的工作有用或有幫助	100.00%	0.00%	0.00%
你滿意是次工作坊的場地安排	100.00%	0.00%	0.00%
你滿意是次工作坊的日期和時間安排	100.00%	0.00%	0.00%

The following is a summary of students' views towards PBL after the workshop.

Pros:

Pros:

- 在課堂中是單向的吸收知識，親身考察能訓練主動思考分析技巧。
- 不單學會資料性知識，還有終身受用的技術性知識。

Cons:

- 討論時會離題，花多些時間才能得到答案。

Student Evaluation: Group Two

Group : St. Catherine Girls' School – F.4 (Mrs. Liu)

Participants : 7

Questionnaires received : 7

評估項目	十分同意	同意	不同意
我對是次工作坊感到滿意	100.00%	0.00%	0.00%
是次工作坊的目標可以達致	71.43%	28.57%	0.00%
是次工作坊的內容編排，切合主題	85.71%	14.29%	0.00%
總的來說，講者講解清楚，整體表現有效	85.71%	14.29%	0.00%
是次工作坊會對你的工作有用或有幫助	100.00%	0.00%	0.00%
你滿意是次工作坊的場地安排	100.00%	0.00%	0.00%
你滿意是次工作坊的日期和時間安排	100.00%	0.00%	0.00%

The following is a summary of students' views towards PBL after the workshop.

Pros:

- 在課堂中是單向的吸收知識，親身考察能訓練主動思考分析技巧。
- 學會協調組員間的意見分歧。

Cons:

- 未必對每個同學都有效果。

II. Summary of Project's Effectiveness

Based on participants' evaluation collected from different project activities, it is noted that the current PBL project had created positive impacts on both teachers and students.

Teacher Level

1. *Teachers had developed a deeper understanding of PBL.* By engaging teachers into both learners and facilitators' activities, we were successful in developing teachers a deeper understanding of PBL, particularly with the 'field' component.
2. *Teachers were able to grasp the main strategies of PBL.* By situating teachers in authentic field experience, they were able to grasp the main strategies of conducting PBL activities, particularly the role and techniques of the 'facilitator'.
3. *Teachers were able to work out solutions in tackling the constraints of PBL.* Through group sharing and discussion after PBL activities, teachers were able to address important issues concerning the adoption of PBL, and at the same time work out resolutions to the foreseeable constraints and problems.
4. *Teachers were able to put theories into school practices.* With the provision of guidelines and consultancy advice by the project team, teachers felt confident in setting up their school-based PBL curriculum. The two successful examples of school-based PBL curriculum implementation indicated that the success of the current project.

Student Level

1. ***Students enjoyed learning more.*** When students were placed at the centre of the learning process, they felt empowered. They enjoyed the freedom to decide what to learn and ways to explore the issues that they were interested in. They treasured what they had learned throughout the activities.
2. ***Students realized the importance of learning to learn.*** By situating students in authentic field situation, students were able to develop their higher-order thinking skills. They started to realize the importance of adopting a new approach to learning and ways to help them become lifelong learners.
3. ***Students were able to develop self-confidence in learning.*** When students were provided with equal opportunities to participate and contribute in groups, they had a chance to demonstrate their potentials and multiple intelligences. Video-taped students' performance in the project activities acts as supplementary evidence to indicate that students, regardless their academic levels, were able to show confidence in expressing their thoughts and ideas.

Appendix 3. Report by Assessor

Project Summary

Title: Problem-Based Learning in the Field

External Assessor: Philip Wing Keung CHAN

I served as a steering committee member from Nov 2003 to Feb 2005 and then as an external assessor from Feb 2005.

The Problem Based Learning in the Field Project has been completed successfully. It trained our students as self-directed learners, systemic problem solvers and effective communicators in learning groups. The project equipped the participating teachers as good problem statement writers, qualified facilitators and proficient evaluators.

Problem Based Learning in the Field was a brand-new teaching method in secondary schools before 2003, the project have achieved the targets by offering a wide-range PBL training for teachers and students through a series training in public seminars, teacher's professional development days and field trips.

PBL students are able to demonstrate independent and active participation in discussion and critical thinking while contributing to a friendly environment. They are willing to make constructive evaluation of self, group and facilitators. We found that PBL students enjoy solving real-world situations and problems and then generating explanations that are more accurate, coherent, and comprehensive.

PBL teachers are able to change the role from knowledge deliverers to facilitators. They learned how to generate a non-threatening environment while still acting to promote discussion and critical thinking. They understood when was the appropriate moment to bring up the important concepts by using questions when students overlooked in discussion. The teachers are willingness to make constructive evaluation of student and group performance. Teacher – students relationship have been promoted in this project.

The project have run for 4 rounds and met all requirements (quality and quantity) of each round. The project started from a small-scale teacher and student training, and then enlarged scale to school level and interscholastic level.

The project has assisted the Kowloon Technical School to develop a 9-weeks PBL program in Life Education in Form 2, including 23 teachers and 200 students. Teaching

schedule, teacher handbook and student handbook have been developed. All students have been benefited at Large-scale presentation, which was conducted in the school hall in the 9th week. This successful case supplied a framework and template for the other schools.

The Project joined with Hong Kong Federation of Education Workers to provide two large-scale PBL events, Natural Science Exploration Award (NSEA) 2004 and 2005, for 150 school teams and 750 teachers/students to have field trips in Tai Mo Shan. Teachers and students expressed a lot of positive feedback about the effectiveness of Problem Based Learning. Many schools still participate in NSEA2006 by their own expenses. Therefore, PBL method is feasible.

PBL is suitable to run in all locations. The project have run in inner city, (Hung Hom, Sheung Wan and Sham Shui Po), countryside (Pak Lap Village, Hung Shui Kiu, Lai Chi Chong and Tai Mo Shan), and even on the Adventure-Ship.

The Project has produced PBL booklets (Chinese and English version) and CD-ROM for schools to have guidance of using PBL in the field. Public exhibition have been held in QE Fund Expo in the Hong Kong Convention and Exhibition Centre.

Problem Based Learning in the Field is more effective than traditional classroom study, students are able to establish cooperation ability with mutual help, and then they can learn to solve the real-life problem independently by themselves. Teachers are able to enhance the facilitating skill to inspire students' interest and cultivate students' team spirit. This project demonstrated a very successful experience providing a strong groundwork for the education sector in the light of education reform.