

# 成果為本教學

## 香港理工大學的經驗分享

Angela Ho, Ph.D.  
Director, Educational Development Centre  
The Hong Kong Polytechnic University  
angela.ho@polyu.edu.hk

1

## 具體經驗的反思

從一個負責推行成果為本教學的前線人員的角度分享

- 實踐中遇到的挑戰
- 經驗教訓

2

## 香港理大的成果為本教學得到讚賞

“The QAC commends PolyU for its **well-grounded conceptual approaches** to implementing Outcome Based Education (OBE) across its undergraduate programmes and for use of **a strategy based on Learning Outcomes Assessment Plans (LOAPs)** to effectively engage stakeholders in the process.” (*Quality Assurance Council, June 2011*)

3

## 全大學、有系統的推動

### 中央領導

- 副校長(學術發展)
- 成果為本教學工作組

### 裝備院系

- OBE Champions
- OBE Fund

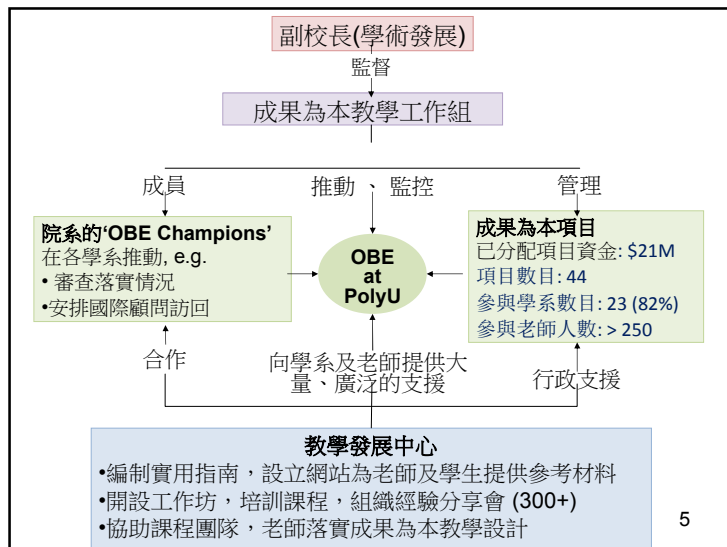
### 支援老師

- 教學發展中心

### 學生參與

- 工作坊

4



THE HONG KONG POLYTECHNIC UNIVERSITY  
香港理工大學

## 主要參考

- '成果為本'教育理論(Spady)
- '建構性配合'理論(Biggs)
- 學習成果評核 (美國)

6



THE HONG KONG POLYTECHNIC UNIVERSITY  
香港理工大學

## 香港理大的成果為本教學： 兩個焦點

- 教學質量的提升(quality enhancement)
- 教學質量的保證(quality assurance)

8

## Overall planning – some tips

'Change is not an event but an ongoing process of organizational and individual learning' (Scott, 2000)

About the change	Some tips
It is <b>organisational change</b> at 3 levels: <b>institutional, programme, course</b>	Best achieved with a <b>holistic, integrated approach</b> and <b>concerted efforts</b>
Involves <b>change in paradigm</b> and requires <b>new know-how</b>	Conduct <b>pilots</b> where necessary (vs diving into full-scale implementation)
Will take an <b>extended period of time</b>	Preferably proceed by <b>stages</b>
Even where programme <b>documentation</b> has been developed to a high standard the <b>understanding</b> and <b>practices</b> of teachers may only follow slowly	<b>Beware of 'paper exercise'!</b>

9

## Implementing OBE & Outcomes Assessment at PolyU

<b>1. Curriculum Revision – clarify Intended Learning Outcomes</b>	
a) Revise programme documents for endorsement in May 2005	2004 - 05
<b>2. Implementation of OBA programmes (Alignment)</b>	
b) Implement OBA programmes	From Sept 05
c) Adopt Criterion Reference Assessment (CRA)	From Sept 05
<b>3. Learning Outcomes assessment</b>	
d) Develop Institutional Learning Outcomes Assessment Plan (LOAP) for approval by LTC	2006-08
e) Departments to develop Programme Learning Outcomes Assessment Plan (P-LOAP) to be approved by Faculty Boards in Aug 2009	2008-2009
f) Pilot projects on institutional outcomes assessment (Collegiate Learning Assessment, course-embedded assessment, e-portfolio)	2008 - 2010
<b>4. Integrating OBE to Strategic Plan &amp; QA System</b>	
g) OBE & LOAP written into the Strategic Plan	June 2008
h) Revised QA system to include OBE elements, e.g. - require Curriculum Map and P-LOAP to be included in Programme Documents - require outcomes assessment results to be included in Annual Programme Review	2009

OBE

## 第一階段：提升教學質量

### 2004年的課程修訂

'The goal is to **revise** our academic programmes to become **outcome-based programmes** for the development of all-round students with professional competence'

'The ultimate purpose of this curriculum revision is to **enhance the quality of our programmes.**'

(Guidelines for Curriculum Revision)

11

## 成果為本教學焦點一:提升教學質量



12

The Hong Kong  
POLYTECHNIC UNIVERSITY  
香港理工大學

## 提升教學質量須要思考範式的轉變

傳統教學	成果為本教學
<p>從<b>教師</b>的角度出發: 教師計劃做什麼, e.g.</p> <ol style="list-style-type: none"> <li>給學生介紹關於xyz的概念及其應用</li> <li>向學生展示xyz的應用</li> </ol>	<p>從<b>學生</b>的角度出發 學生將能夠做什麼, e.g.</p> <ol style="list-style-type: none"> <li>能運用xyz的知識</li> <li>能發現、界定和解決問題</li> <li>理解專業和道德責任</li> </ol>

教師的角度 學生的角度

13

The Hong Kong  
POLYTECHNIC UNIVERSITY  
香港理工大學

## 提升教學質量須要思考範式的轉變

傳統教學	成果為本教學
<p>根據教學的內容來計劃, 著重:</p> <ul style="list-style-type: none"> <li>知識</li> </ul>	<p>根據學習成果來計劃, 包括:</p> <ul style="list-style-type: none"> <li>知識</li> <li>能力</li> <li>素質</li> </ul>

內容為本 成果為本

14

The Hong Kong  
POLYTECHNIC UNIVERSITY  
香港理工大學

## 從內容為本到成果為本

建議老師思考的問題: “學生為什麼要學這些知識?”

<p>students are expected to <b>know / understand</b>:</p> <ol style="list-style-type: none"> <li>the criteria for selection of lamps and lighting systems ;</li> <li>photometric &amp; colorimetric calculations on light sources &amp; luminaires &amp; building lighting design;</li> <li>the basic principles of building lighting design considering work performance, human comfort, satisfaction, health, aesthetics, economy and energy;</li> <li>the basic principles of daylighting in buildings;</li> <li>how to analyse, synthesize and evaluate lighting designs &amp; applications.</li> </ol>	<p>Students should be <b>able to</b></p> <ol style="list-style-type: none"> <li>identify the criteria for the selection of lamps and lighting systems;</li> <li>perform calculations on photometry &amp; colorimetry of light sources and luminaires for building design;</li> <li>analyze impact of human factors, economy and energy on building lighting design;</li> <li>examine daylighting in building and its effect on lighting design;</li> <li>apply and synthesize different principles of lighting;</li> <li>evaluate different types of lighting designs &amp; applications.</li> </ol>
---	--

15

(With acknowledgements to Dr. T.M. Chung, BSE, PolyU)

The Hong Kong  
POLYTECHNIC UNIVERSITY  
香港理工大學

## 成果為本教學:四大基本元素

確定  
理想的學習成果

設計配合學習成果的課程, 教學, 及評核

成果評估  
搜集成果達標的數據

利用成果評估數據  
改善課程

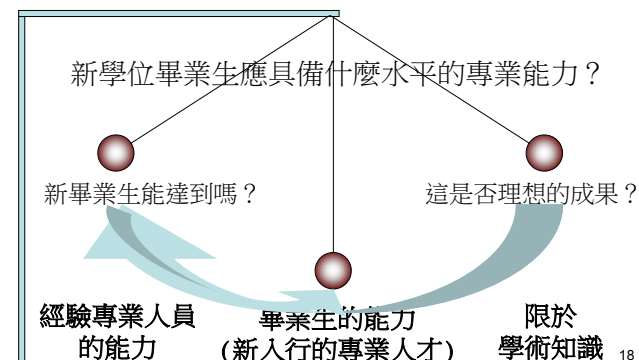
16

## 對齊三個層面的學習成果(Mapping)

三個層面的學習成果	理大的例子
大學的學習成果	具備全人素質的專業人材
↓	↓
課程的學習成果	所有課程和科目的學習成果包括:
↓	
科目的學習成果	a) 學術/專業的知識和技巧 b) 全人素質

17

## 專業能力 - 提防鐘擺效應



18

## 專業能力的水平

經驗專業人員	新入行的專業人才
Able to <u>exercise professional decision</u> in the consideration, evaluation, and justification of feasible alternatives in <u>complex situations</u>	Able to <u>evaluate alternatives</u> and <u>justify feasible solutions</u> for <u>real-life problems</u>
Able to <u>handle the challenges</u> and <u>contribute</u> to developments of the profession	Be aware of the challenges and developments of the profession and able to cope with them through continuous professional development

19

## 對齊學科成果與課程成果 - 提防量子跳躍 (quantum jump)



如何在各科目的教學中鋪路幫助學生達到課程的最終學習成果?

知道

比較, 對照, 解釋, 討論, 聯繫, 分析

應用, 設計, 解決問題

20

The Hong Kong POLYTECHNIC UNIVERSITY  
香港理工大學

## 建議老師闡明理解的層次

Extended abstract understanding 擴展性, 抽象的理解	與 <b>課題外</b> 的資料和理論相 <b>聯繫</b> 例如: 概括、批判、反思、提出假設
Relational understanding 關聯性的理解	認識 <b>課題中</b> 事實間的 <b>聯繫</b> 例如: 比較、對照、聯繫、運用、分析、解釋原因
Factual understanding 知道更多的事實	<b>記憶</b> 大量的信息 例如: 識別、列舉、描述

(simplified from Bigg's SOLO Taxonomy)

21

The Hong Kong POLYTECHNIC UNIVERSITY  
香港理工大學

## 成果為本教學:四大基本元素

確定理想的學習成果

設計配合學習成果的課程, 教學, 及評核

成果評估  
搜集成果達標的數據

利用成果評估數據改善課程

22

The Hong Kong POLYTECHNIC UNIVERSITY  
香港理工大學

## 老師教了=?學生學了

我教了 Strip 吹口哨

可我沒聽見它吹口哨呀

我說我教它了, 並沒有說它學會了呀

I TAUGHT STRIPE HOW TO WHISTLE

I DON'T HEAR HIM WHISTLING

I SAID I TAUGHT HIM. I DIDN'T SAY HE LEARNED IT

23

The Hong Kong POLYTECHNIC UNIVERSITY  
香港理工大學

## 通過‘配合’來保證達到成果

理想的學習成果

配合

教與學的活動

評核方法

建構性配合 **Constructive Alignment** (John Biggs)

理想的成果+配合的教學和評核

## 提高教學及評核與學習成果的配合

- 2004課程修訂評審留意到課程文件中的建構性配合不明顯
- 重新設計 **Subject Description Form** 要求描述主要的教學及評核方法並證明(justify)都與預期的學習成果配合

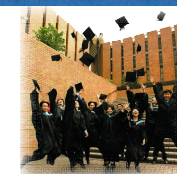
25

## 大學的學習成果

重要的通用學習成果、生活技能，

例如：

- 分析能力
- 創意思維
- 國際視野
- 社會意識及民族責任感
- 終身學習的能力
- 領導才能



26

## 結合正規課程與輔學活動 配合通用的學習成果



- 嵌入正規課程的各個學科中 e.g., 協作學習項目
- 課程改革，全面要求以下課程組件
  - Work-integrated education 校企協作教育
  - Service learning 服務學習科
  - Leadership & interpersonal development
  - Subjects with reading and writing development
- 各院系及多個學術支援部門提供範圍廣泛的輔學活動

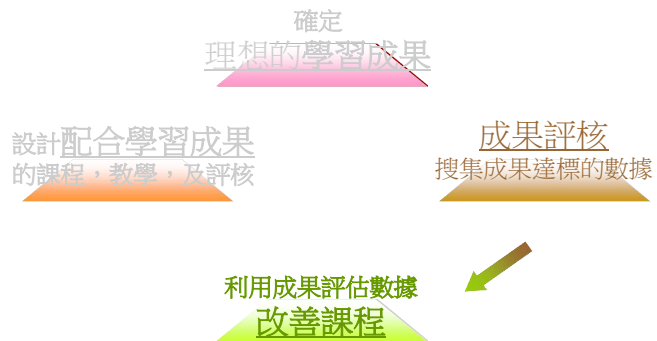
27

## 第二階段：學習成果評核

2006-08	Developed 2-tier Learning Outcomes Assessment Plan (LOAP)
<i>Programme level learning outcomes assessment</i>	
2008-09	Departments developed Programme Learning Outcomes Assessment Plan (P-LOAP) which were reviewed by WGOBE
2009 /10	Departments piloted their P-LOAP & submitted an interim report in Aug 2010
2011-12	LTC & WGOBE review and refine the P-LOAP framework
<i>Institutional level learning outcomes assessment</i>	
2008 - 2010	Conducted pilot projects on institutional outcomes assessment (Collegiate Learning Assessment, course-embedded assessment, e-portfolio)
2011-12	Review of all existing institutional assessment strategies (both direct and indirect), rationalise the surveys and refine the Institutional LOAP

28

## 成果為本教學焦點二:保證教學質量



29

## 推行成果評核 - 提防概念混淆

成果評核 = ? = 成績評核



30

## 學習成果評核

對學生學習成果達標的數據作出系統化的搜集、檢閱及運用來改善教學

- 學生能夠達到哪些學習成果？  
哪些需要改善？
- 需要什麼改善方案以提升果效？  
如何推行？

31

## 三個層面的學習成果評核

三個層面的學習成果

三個層面的學習成果評核

大學學習成果

評核大學  
在達到通用學習成果的成效



課程學習成果

評核課程  
在達到課程學習成果的成效



科目學習成果

評核科目  
在達到科目學習成果的成效

32



The Hong Kong  
POLYTECHNIC UNIVERSITY  
香港理工大學

## 學習成果評核VS科目成績評核

	成果評核	科目成績評核
<b>目的</b>	評核大學/課程/科目在達到預設學習成果的成效以作改善及問責的用途	評核個別學生的學習表現，以作評分用途
<b>評核什麼</b>	評核具體的學習成果(例如：溝通技巧、解決問題的能力)	評核學生就某科目的知識和技能的整體表現
<b>評核單位</b>	整批學生(可用學生樣本)	單個學生

33

The Hong Kong  
POLYTECHNIC UNIVERSITY  
香港理工大學

## 理大的學習成果評核框架

- **大學通用學習成果的評核**由大學中央統籌
- **課程及學科的成果評核**由各學系負責，各課程須要
  - 提交並執行課程學習成果評核計劃 [Programme Outcomes Assessment Plan \(P-LOAP\)](#)
  - 在年度課程檢討中匯報彙報學習成果評核的結果

34

The Hong Kong  
POLYTECHNIC UNIVERSITY  
香港理工大學

## 通用學習成果(generic outcomes)評核

**‘直接’的評估方法**(根據學生的實際表現)

- Collegiate Learning Assessment

**‘間接’的評估方法**(基於相關者的主觀意見)

- Alumni survey
- Graduate employment survey
- Survey of Students' First year Experience at PolyU
- Student exit survey
- Employer survey
- Self Assessment of All-Round Development (SAARD) Questionnaire

35

The Hong Kong  
POLYTECHNIC UNIVERSITY  
香港理工大學

## 課程學習成果評核計劃表

Programme Intended Learning Outcomes	Learning outcomes assessment methods	How the data will be collected (Who, How, When)	Criteria for success	How the data will be disseminated/ used for improvement
1				
2				
3				
4				

Source: Developing Programme Learning Outcomes Assessment Plan: A Simple & Practical Guide for PolyU Staff (The Hong Kong Polytechnic University, 2008)

36

## 系統層面的變化

- 在**大學策略發展計劃**中明確的支持落實成果為本教學
- 把成果為本教學的理念及學習成果評核納入大學的**質量保證框架**
- 要求在**學系年度工作計劃書**中包括落實成果為本教學的方案
- 修訂**學生反饋調查問卷**以反映成果為本教學
- 採取**標準參照評核** (criterion-referenced assessment)

37

## 實施過程中須要注意的問題

- 共同的理解和願景
- 專門知識 (know-how)
- 工作量及動機(motivation)
- 思考範式的轉變所須的時間
- 老師的承擔
- 學生的參與
- 提防紙上談兵 (paper exercise)

38

歡迎訪問香港理工大學成果為本教育的網站

(for teachers) <http://www.polyu.edu.hk/obe/>

(for students) <http://www.polyu.edu.hk/obe/students/>

39