PBL and its Application

问题导向教学法 (PBL)及其应用

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PBL vs Traditional Learning

Traditional Learning

Lecturer

Who is *hot*?

Problem Based Learning (PBL)

Patient’s problems are the stimuli for learning.
What is PBL?
什么是问题导向教学法?

Organisation 组织结构

➢ Student centred 以学生为中心
➢ Small group 小组形式
   • ~ 5-9 members
➢ Facilitator/tutor 指导老师
   • guide, facilitate, monitoring
   • mini-teaching/or answering key questions
➢ Problem as the stimuli and motivation
   问题是学习的焦点, 动力和载体
➢ Self-directed learning 自主学习
What is PBL? 什么是问题导向教学法？

Goals 目标

➢ Knowledge integration 知识整合
  • Structure of knowledge is centred on solving problem not isolated as different discipline

➢ Scientific inquiry skills 科研能力
  • Define problem, find solution to the problems

➢ Communication skills 沟通技能
  • Communicate ideas
  • Able to express yourself well and also able to listen well and respond appropriately and constructively

➢ Collaborative learning 协作学习
  • Inspirations
  • Together everyone achieve more – TEAM
  • Collaborate within team and with people from different location and disciplines an industrial sectors.

➢ Develop capacity for life-long learning 培养终生学习能力
  • Knowledge becomes obsolete very fast!
  • New things occur faster then ever before – as we are developing innovative talents right now.
  • Driven by globalization
在你的教学中：

**Student centred**
以学生为中心

**Scientific inquiry skills**
科研能力

**Knowledge integration**
知识整合

**Communication skills**
沟通技能
Collaborative learning
协作学习能力

Develop capacity for life-long learning
培养终生学习能力

Personalized teaching
个体化教学程度
**Brief History of PBL**

**Howard S. Barrows**
(March 28, 1928 – March 25, 2011)

Invented PBL curriculum while he was at McMaster University Medical School in 1970’s.

Started in 1969 in a medical curriculum

Further applied in South Illinois University by Barrows

In Canada Hamilton, ON, Canada

Many university use the PBL as the **only teaching** method – such as Michigan University, New Mexican University and Harvard University


PBL Centred Curriculum at School of Medicine, Western Sydney University

西悉尼大学医学院以问题导向教学为中心的课程设置

- Lab Practice 实验室实践
- Lecture 大课堂教学
- Communication tut 小组互动辅导
- Clinical training (or Field work in agriculture) 临床实践（或农业田间实践）
- PPD 个人能力及专业发展
- Spiral Curriculum
The PBL Process

Session One (2 hrs)

Trigger: Patient’s problems

History

Extract key info & define presenting problems

Formulate hypotheses

Clinical exam/initial investigations

Generate learning issues

Consolidate learning issues

Self-directed study (2-3 days)

Integration with existing knowledge

Extract Relevant information

Refine hypotheses

Session Two (2 hrs)

Closure – case summary

Progress

Formulate holistic management plan

Final diagnosis

Draw diagram of mechanism

Further investigations

Discuss learning issues
**Trigger**

**Approx 60 minutes**

It is important to encourage students to think broadly about the problem. Questions which may facilitate this are included in the guide below. Remember that hypotheses need to be supported by a mechanism. Additionally, students should be encouraged to develop a list of learning issues. Ask the group not to progress to the next screen on the computer until they have completed the tasks and you indicate that they are ready to progress.

**View image(s) on computer**

You are a medical student undertaking an Emergency Medicine attachment at a Sydney hospital.

Sam Knight is a 3-year-old boy who is brought in at 10 pm by his mother, Natasha. She says “Sam never wets the bed, but tonight he woke up absolutely soaked through. He is very thirsty and he keeps weeing.” At that moment Sam interrupts “Mummy, I need to do wee-wees again.”

**Instructions**

Students are given discussion questions (see below) as a guide to the clinical reasoning process. Additional prompting questions are also suggested in **bold** and possible discussion points are outlined (see table over page). The responses identified are not an exhaustive list, nor are they the only ‘right’ responses. Other suggestions may be equally appropriate.
Mechanism of disease

疾病机制

The patient problem that is explained by the disciplinary knowledge and reasoning.
Assessments of PBL
PBL教学反馈评价

➢ Tutor assessments 指导老师对学生的的评估
  • Formative – feedback
  • Summative – marking + feedbacks
  • Via interviews and formal form-based feedbacks to students performance and suggestions

➢ PBL evaluation 学生对指导老师和PBL过程的评价
  • Tutor
  • PBL processes
  • Self-evaluation
### PBL Tutor Assessment Criteria

<table>
<thead>
<tr>
<th>Clinical Reasoning</th>
<th>Level 1. Performance above that expected</th>
<th>Level 2. Appropriate for stage in program Clearly satisfactory</th>
<th>Level 3. Developing Borderline Satisfactory</th>
<th>Level 4. Insufficiently developed for educational stage</th>
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<tbody>
<tr>
<td>1. Generates and justifies diagnostic hypothesis and problem list, changing, refining and prioritising, in response to new information</td>
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<tr>
<td>2. Proposes and justifies mechanisms relating hypothesis to symptoms (at an organ, cellular and molecular level)</td>
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<tr>
<td>3. Makes and justifies</td>
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### PBL Evaluation

Please complete e.g. ○○○●● with Blue or Black Pen

PBL Evaluation

Students' ratings and comments related to the PBL process and the tutor's performance.

- **PBL Group**: A rating scale ranging from 1 to 5 is provided, indicating the students' level of agreement with statements about the PBL process and the tutor's performance.

- **Feedback**:
  - PBL tutorials are intellectually challenging and stimulating.
  - PBL case materials stimulate my learning.
  - Time allocated to PBL is adequate and used well.
  - In Year 1, I knew what was expected of me in PBL tutorials.
  - My current PBL tutor:
    - Is punctual and manages tutorial time well.

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Please note that any responses will be kept private and used in an aggregated format.
A Rewarding, Fun Way of Learning & Teaching!
一种有益的，有趣的教学方法！
Future of PBL – Discussion

PBL的未来趋势讨论

• Distance - PBL
• Online PBL
• AI augmented PBL
• Any other new developments
PPD is essential for success of PBL

个人能力及专业发展是PBL的基础

- PPD – Professional and personal development
- Case based tutorials – during pre-clinical years (year 1 and year 2)
- Reflective journals in years 4 while they are in clinical placements
Collaborators 合作者

**Professor Ian Wilson**  MBBS; PHD; MASSES&EVAL; FRACGP

Associate Dean: Learning & Teaching
UNIVERSITY OF WOLLONGONG

Graduated in medicine from the University of Adelaide and then became a general practitioner. He has practiced in the armed services, inner city, rural and suburban practice. During this time Ian became very interested in medical education and spent time with The Royal Australian College of General Practitioners (RACGP) training programs, initially as a medical educator and then as State Director for South Australia and the Northern Territory.

*Website of UoW assessed 2017 October*

**Dr V. Langendyk.** Western Sydney University

**Dr Glenn Mason** Western Sydney University

**Professor Wendy Hu** Western Sydney University

**Dr Iman Hegazi** Western Sydney University

**A/Professor S. K. Rosenkranz,** Department of Human Nutrition, Kansas State University
Publication – Higher Education/PBL

我们发表的有关高等教育和PBL的文章


• Mason, G., Langendyk, V. & Wang, S. (2014). 'The game is in the tutorial': an evaluation of the use of an e-portfolio for personal and professional development in a medical school. accepted as full paper by ascilite 2014, Dunedin, New Zealand - *Critical perspectives on educational technology*.


• Wang, S. (2012). Impact of ESME (Essential Skills in Medical Education) Course on My Educational Activity - An ESME Report to AMEE. 18 pages. reviewed by Prof. J. Thistlethwaite, Director of Centre for Medical Education Research and Scholarship, School of Medicine, University of Queensland, Australia.
Professor Ronald Harden: 
Emeritus Professor of Medical Education, the University of Dundee, UK

Awards: Gusi Peace Prize for his contribution to healthcare around the world: 顾氏和平奖得主;
Thank you for your Attention!