

# Trials of PBL

Some reflections

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# Two trials of PBL

1. Teaching and learning in integrated and applied science
2. Living healthily in the 21<sup>st</sup> century



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# Trial 1 – Problem case

You are now planning how to teach the topic *Electricity* in your S2 science class. A physics teacher told you that most students at S4 are still having a lot of **misconceptions** about electric current and voltage, which they should have learned in junior forms. You decide to look into how these misconceptions are brought about and the effective teaching strategies for it.



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# Five similar problems on different areas of science teaching

- Science concepts on electricity
- Scientific investigation about dissolving
- The nature of science
- Attitudes towards conservation of life
- STS relationships in human reproduction



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# Collaborative PBL

- Students formed **two groups** of 4/5.
  - Two groups worked on the **same set of problems**.
  - Each member of a group chose to work on a different problem.
  - While each student was the **chief problem solver** for a problem, they had to **help other members** to solve their problems **collaboratively**.
  - Grades were given to the chief problem solver as well as his/her teammates for each problem case
- Each problem was tackled by the two groups and their lesson plans were compared.

# Schedule

## 1<sup>st</sup> group meeting

- Assign chief problem solver
- Discuss and clarify the problems.
- Identify the information needed and ways of obtaining information.

## 2<sup>nd</sup> group meeting

- Discuss the progress
- Solve problems collaboratively
- Identify new lines of information needed

## 3<sup>rd</sup> group meeting

- Individual member presents their lesson plans
- Have final amendments on the plans

## 4<sup>th</sup> – 6<sup>th</sup> meetings

- Tryout of lesson plan for each problem

Class discussion and assessment



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# Findings

- Students commonly found it difficult to search for information about pedagogy for specific topics.
- As a result, some designed their teaching by **intuition and experience** rather than based on any new information obtained.
- **Not much collaboration** observed as most of them were incapable of giving constructive advices for their peers – most advices came from me instead!



## Trial 2 – Living healthily in the 21<sup>st</sup> century

- At each class, students are presented with one health issue (mainly in form of video clips)
- Students form groups to identify problems of the issue and search for relevant information.
- Each group presents their findings in the next class.





# A sample health issue

## PBL learning on nutrition and health

Watch the following video clips and identify the learning issues in them. As a group, search for information to answer the issues identified.

健康大道[2007]

[http://edvideo.ied.edu.hk//VVM\\_title.php?callno=b16015733&prog=RTHK&sid=innopac](http://edvideo.ied.edu.hk//VVM_title.php?callno=b16015733&prog=RTHK&sid=innopac)

9. [兒童肥胖與瘦身] 0-7 min

15. [減肥謬誤] 0-7 min

## Reference web sites

- Hospital authority dietetic information centre

<http://www.ha.org.hk/dic/>

香港營養師協會 [http://www.hkda.com.hk/index\\_c.html](http://www.hkda.com.hk/index_c.html)

# The most successful one

## PBL learning for **first aid**

### Scenarios

Draw lots to get one first aid scenario to work on :

1. Explain the accidents: causes, signs and symptoms
2. List the First Aid principles
3. List out the interventions and set up their priorities
4. Write the steps to prevent this accident.

**In the next class, each group would have 20 minutes to **demonstrate and explain** your actions.**



# 急救個案 (First aid scenarios)

## (一) 中風 (Stroke)

你在家中正和你的祖母閒談，發現她突然神智混亂，說話含糊不清、還有口部有唾液流出。

## (二) 嬰孩鯁喉 (choking)

一位母親在家照顧九個月大的兒子，又要準備午膳，因而將一罐朋友相贈的曲奇餅，當作玩具給兒子玩，之後走進廚房。突然聽見兒子不停咳嗽，面色大轉 ...

## (三) 小兒鼻出血 (nasal bleeding)

你和你四歲的小弟弟在公園的遊樂場玩耍，突然見到小弟不停地流鼻血，右腳有嚴重擦傷。

## (四) 吃月餅引蜂螫 (bee stings)

你路過村口的大樹旁，見到有一位婦人邊吃月餅邊走路，味道引來一群馬蜂襲擊，遂高聲呼救。

## (五) 交通意外 (traffic accident)

一輛電單車，駛經觀塘協和街，有年約十三歲女學生突然走出馬路，鐵騎士收掣不及將她撞倒，你剛路經此地，發現她左腳骨折受傷。電單車司機右手右腳擦傷。

## (六) 烈日暴曬 (Heat stroke)

康文署慶祝特區成立十周年，昨晨舉辦萬人練太極活動，逾二萬人在前啟德機場跑道一同練太極二十分鐘，創下了香港最多人一同練太極的紀錄。不過，參加者在解散時卻要在烈日下苦候接送巴士個多小時，至少二十九人因在烈日下“乾曬”五小時，致體力不支感到頭暈，氣促，作悶，嘔吐，以至失去知覺，需要送院治理。

## (七) 灼傷 (burns)

屯門一個8個月大姓梁男嬰，昨午約2時12分在家中由親友餵食粥水，其間疑男嬰突然發脾氣手舞足蹈，手持熱粥的60餘歲女親友一時失手，整碗熱粥倒在男嬰胸口，男嬰痛得大聲哭叫。

# Comparisons of the 3 trials

	Lesson planning	Health issues	First aid
Student motivation	low	medium	high
Problem	ill and open	medium	more closed
	Artificial	authentic (video)	authentic
Solutions	open and undefined	medium	Specific
Tutor facilitation	high	low	low
Duration	8 weeks	1 week	1 week
Group	low	medium	high