

Problem-based learning (PBL) workshop
In integrative higher education
以問題導向學習應用在
整合性的高等教育

宜蘭大學 PBL 工作坊
November 5 and 6, 2009

Workshop facilitator:

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關超然 教授

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Problem-based learning (PBL) is a pedagogic philosophy encompassing many educational theories in higher education and was first developed at McMaster University in 1965 as an innovative education for the training of medical professionals and was latter sprouting into other forms, such as project-based learning, outcome-based learning, scenario-based learning and alike. The essence of this learning is student-centered, problem-oriented and self-directed. Its aim is to construct the ability and establish the attitude in coping with the changing environment of the learner along the learning process. The ultimate aim of PBL is to achieve life-long learning.

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Ph.D. (1976) Biol. Chem., U. Penn., Phila., Pa., USA

M.Sc. (1971) Physic. Chem., Wilkes Coll., Pa. USA

B. Sc. (1969) Chemistry, Chu-Hai Coll., Hong Kong

Excellent PBL Tutor Award, McMaster (2002)

Ontario Heart Fdn Fellowship Awards (1981-1988)

Career Investigator Award Can Heart & Stroke Fdn. (1989-99)

Young Investigator Award, Canadian Hyperten. Soc. (1987)

Excellent Teaching Assistant Award in Chemistry, U Penn. (1974)

Canada's Who's Who; Names in Hong Kong (China)

關
超
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教
授

Assist. Professor (1980); Assoc. Professor (1984); Tenured Professor (1988)

關教授是一位專門研究心血管科學的基礎研究科學家，在研究所求學階段，他被培訓成為一個物理化學家以及生物化學家。從1976年起，他的研究專長範圍就已非常廣泛，包括在分子藥理學、細胞生理學以及天然產物（包含中藥、重點在鈣細胞游離鈣調控）等方面研究。關教授同時也是加拿大McMaster大學平滑肌研究計畫以及香港大學醫學院的心血管醫學研究中心之創建者。他訓練出的研究學生及學者散佈全球並服務於學術界。在這段期間，關教授共發表了350篇以上的論文（摘要除外，包括二十餘本書和會議書籍中的論文以及二十餘篇之教育方面的論文或綜述），他也訓練過多位來自其他國家的研究生以及博士後研究員，亦曾擔任過數本國際性期刊的顧問與編輯委員，以及審核論文稿、國際研究基金授與機構（加拿大、美國、新加坡、香港）研究生論文與學術提昇者長達20多年之久。在學術生涯中，亦曾被中國大陸排名前10名的醫學大學、香港大學、香港中文大學、國立新加坡大學、國立馬來亞大學以及台灣的國防醫學院、輔仁大學等醫學院校榮聘為客座教授。關教授目前任職於台灣的中國醫藥大學(2005年十月上任)，擔任該校學術交流中心與教師培育暨發展中心的第一任主任，同時也擔任跨學科學院心血管研究小組的召集人。

關教授精通於問題導向學習（**problem-based learning**），並於麥馬斯特大學擔任助教將近20年之久，他是一位履獲殊榮以及熱心於推展PBL的實踐者。從1994年起，他幫助香港大學的醫學院引進PBL教學理念，並促成該院於1997年開始實施一個PBL混合模式（**hybrid model**）的課程，於2000年時，關教授同樣也幫助新加坡大學的醫學院規劃一個混合PBL的課程。之後關教授持續活躍於亞太地區（從日本到新加坡），特別在推展PBL方面更是不遺餘力，同時也擔任多所醫學院校的顧問及指導教授。2003年期間，菲律賓馬尼拉的WHO分部委任他為短期的PBL顧問，2004年關教授到台灣的黃達夫醫學教育促進基金會擔任客座教授長達6個月繼續在台灣11所醫學院校推廣PBL理念並應用於醫學教育上。2006年關教授受邀參加在北京舉辦每四年一次的世界藥理學會所(IUPHAR)及在韓國舉辦亞太生理學會(FAOPS)的藥理及生理教育衛星座談會並主持一個PBL小組討論研討會，同時他也是世界藥理大會受邀演講有關**Education Towards Integrative Teaching in Medical Pharmacology**。任職中國醫藥大學之後，關教授為該校規劃一個教學卓越計畫的主題：**foresee (4C) our future**。經教育部二審通過，於2006年7月中國醫藥大學獲得台灣教育部七千八百萬元(2007: 8百餘萬元的計畫補助款，連續三年。

Selected 5-year publications (Life time publications - 346 papers & book chapters)

Medical Education:

1. **Kwan CY.** Guest Editor for special topic Quality Assurance in problem-based learning. *J. Med. Educ.* 6: 1-84, 2002.
2. **Kwan CY.** Guest Editor for Special topic: Teaching of Physiology *J. Med. Educ* 6: 446-520, 2002.
3. **Kwan, C.Y.** Problem-based learning: properly balanced learning? *Trends in Pharmacol Sci.*, 23:163-164, 2002.
4. **Kwan, C.Y.** Problem-based learning and teaching of med. pharmacology. *Naunyn-Schmiedeberg's Arch. Pharmacol.*, 366:10-17, 2002.
5. **Kwan, C.Y.** (tutor), T. Griffin, A. Hosein, K. Howell, J. Huber-Okraïneç Y. Hussain. Students' perspectives on early clinical exposure during the first twelve weeks of medical education at McMaster University. *J. Med. Educ.* 7: 3-14, 2003.
6. **Kwan, C.Y.** So, you will be a PBL tutor in a medical school. *J. Med. Educ.* 7: 313-322, 2003.
7. **Kwan, C.Y.** Learning of medical pharmacology via innovation: a personal experience at McMaster and in Asia. *Acta Pharmacol Sinica* 25: 1186-1194, 2004.
8. Song G, **Kwan CY**, Bian Z, Tai B, Wu Q. Exploratory thoughts concerning educational reform with problem-based learning in China. *Teach Learn Med.* 17:382-384, 2005.
9. **Kwan CY**, Chang YH. PBL: education reform in Chinese and Western medicine. *Huaxia Med.*1:180-182, 2006.
10. Huang C, Bian Z, Tai B, Fan M, **Kwan CY.** Dental education in Wuhan, China: challenges and changes. *J Dent Educ.* 71:304-11. 2007.
11. **Kwan CY**, Lee MC. (Reference Book): PBL - theory, practice, application and experience. (the only such book written in Chinese) pp 317. Elsevier (Taiwan). 2009.

Biomedical Sciences:

1. Achike FI, **Kwan CY.** Nitric oxide, human diseases and herbal products that act on NO pathway. *Clin Expt Physiol Pharmacol* 30: 605-615, 2003.
2. Kravtsov GM, Bruce IC, Wong TM, **Kwan CY.** A new view of K⁺-induced contraction in rat aorta: The role of Ca binding. *Pflugers Archiv*, 446: 529-540, 2003.
3. **Kwan CY**, Chen CX, Deyama T, Nishibe S. Endothelium-dependent vasorelaxant effects of the aqueous extracts of the *Eucommia ulmoides* Oliv. leaf and bark: implications on their antihypertensive action. *Vascul Pharmacol.* 5: 229-5235, 2003
4. **Kwan, CY**, Kwan TK, Zhang WB, Sakai Y. In vitro relaxation of vascular smooth muscle by atropine: involvement of K⁺-channels and endothelium. *Naunyn-Schmiedeberg's Arch Pharmacol.*, 368: 1-9, 2003.
5. **Kwan CY**, Zhang WB, Deyama T, Nishibe S. *Eucommia* aqueous extract induces endothelium-dependent relaxation in rat aorta and mesenteric artery. *Naunyn-Schmiedeberg's Arch Pharmacol.* 369: 206-211, 2004.
6. Zheng WB, Chen CX, Sim SM, **Kwan CY.** *In vitro* vasodilator mechanisms of indole alkaloids, rhynchophylline and isorhynchophylline, isolated from the hook of *Uncaria rhychophylla* (Miquel). *Naunyn-Schmiedeberg's Arch Pharmacol* 369: 232-238, 2004.
7. **Kwan CY**, Zhang WB, Sim SM, Deyama T, Nishibe S. Vascular effects of Siberian ginseng (*Eleutherococcus senticosus*): endothelium- dependent NO- and EDHF-mediated relaxation depending on vessel size. *Schmiedeberg's Arch Pharmacol.* 369: 473-480, 2004.
8. Younglai EV, Kwan T, **Kwan CY**, Lobb DK, Foster WG. Dichlorodiphenylchloro-ethylene elevates cytosolic calcium concentrations and oscillations in cultured human granulose cells. *Biol Reprod* 70: 1693-1700, 2004.
9. Schmidt T, Samson SE, **Kwan CY**, Grover AK. Peroxynitrite resistance of sarco/endoplasmic reticulum Ca²⁺ pump in pig coronary artery endothelium and smooth muscle *Cell Calcium*, 36:77-82, 2004.
10. Younglai EV, Wu YJ, Kwan TK, **Kwan CY.** Non-genomic action of estradiol and progesterone on cytosolic calcium concentrations in primary cultures of human granulosa-lutein cells. *Hum Reprod.* 20:2383-2390, 2005.
11. **Kwan CY**, Zhang WB, Nishibe S, Seo S. A novel in vitro endothelium-dependent vascular relaxant effect of *Apocynum venetum* leaf extract. *Clin Exp Pharmacol Physiol.* 32:789-795, 2005.
12. Davis KA, Samson SE, Best K, Mallhi KK, Szewczyk M, Wilson JX, **Kwan CY**, Grover AK. Ca²⁺-mediated ascorbate release from coronary artery endothelial cells. *Br J Pharmacol.* 147:131-319, 2006.
13. Jassen LT, **Kwan CY.** ROCs and SOCs: what is in a name? *Cell Calcium* 41: 245-247, 2007.
14. Leung YM, **Kwan CY.** Dual vascular effects of leptin via endothelium: hypothesis and perspective. *Chin. J. Physiol.* 51:1-6, 2008.
15. Zhang WB, **Kwan CY.** Unrepeatable extracellular Ca²⁺-dependent contractile effects of cyclopiazonic acid in rat vascular smooth muscle. *Eur J Pharmacol.* 610(1-3):81-86,. 2009.

Workshop Day 1:

Problem-based learning: review and demonstration

Nov. 5, 2009 (Thursday)

宜蘭大學

09:00 – 09:30	Registration
09:30 – 09:45	Opening introduction and welcoming remarks
09:45 – 11:15	Lecture (1) Higher Education in Taiwan and PBL, A scenario-based, student-centered and self-directed learning
11:15 – 11:30	Tea and coffee
11:30 – 12:30	Lecture (2): The “PBL trigger”: the platform for self-directed learning
12:30 – 13:00	General discussion, Q and A
13:00 – 1400	Lunch
14:00 – 15:00	PBL Demonstration: The 1st tutorial: Actual demonstration of PBL tutorial with students: warm-up, understanding the trigger, discussing, and hypothesizing.
15:00 – 15:30	Tea and coffee
15:30 – 16:30	Feedback and General discussions

We, as university teachers, may know very well the problems we routinely encounter in the class room during our teaching, but we have seldom developed an effective way in dealing with these problems, which perpetuate themselves with time and became hard to manage. In this workshop, you will learn about the difference between the traditional higher education (e.g., in our present university system) and the innovative educational philosophy. PBL. In this workshop, actual students of your university or the participating teachers will serve as students to conduct a close-to-real PBL tutorial with David Kwan as the tutor. Some participating **teachers will observe the tutorial process**. The feedback at the end is a very important and useful exercise.

If the students had no prior knowledge on PBL, they should be encouraged to attend the lectures.

Workshop Day 2:

Practice on writing PBL cases: do it in PBL way

Nov. 6, 2009 (Friday)

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PBL Case writing workshop: Half a day activity starting from 09:30 am – 01:00 pm

09:00 – 09:30 Registration

09:30 – 10:30 All participants divided into 3-4 groups to have hands-on experiences in the writing of PBL cases.

10:30 – 11:00 Coffee break

11:00 – 12:00 Reports from groups (10-15 min per group)

12:00 – 13:00 General discussions

Writing PBL problems are extremely important for the success of the PBL curriculum, because these problems form the major platform for learning medicine in a personable living environment. Depending on the nature of the curriculum and the role of PBL in it, the problems may serve as a driving force for student learning. If the problems are not properly designed or written, it may not have the advantages of PBL which is supposed to offer. Problem-writing represents a properly balanced presentation of the scope of professional competency, not just knowledge domain as in the traditional textbook or professors' lecture notes. The writing of PBL problem should conform to the spirit of PBL philosophy in order to make the learning more meaningful. The skill of writing the PBL problem lies in its planning to suit the design of the curriculum with balanced multiplicity in health care education.