

## 參考文獻（\* 為納入本後設分析之文獻）

- \* 王聰智（2005）。問題導向學習在互動式線上模擬教學之研究——以高職電機電子群「數位邏輯實習」課程為例。國立彰化師範大學工業教育與技術學系碩士論文，未出版，彰化市。

[Wang, T.-C. (2005). *A study of problem-based learning applied in the interactive on-line simulation teaching -- an example for the "digital logic lab" course at vocational high school*. Unpublished master's thesis, National Changhua University of Education, Changhua, Taiwan.]

- \* 江鴻仁（2001）。問題導向學習在有機化學網站之應用與研究。靜宜大學應用化學研究所碩士論文，未出版，臺中縣。

[Chiang, H.-R. (2001). *The application of question-based learning of organic chemistry web title*. Unpublished master's thesis, Providence University, Taichung, Taiwan.]

- 吳清山（2002）。問題導向學習。教育研究月刊，97，120。

[Wu, C.-S. (2002). Problem based learning. *Journal of Education Research*, 97, 120.]

- \* 吳耀明（2008）。國小五年級社會領域實施問題本位學習的歷程與成效之研究。國立嘉義大學國民教育研究所博士論文，未出版，嘉義縣。

[Wu, Y.-M. (2008). *The study of process and effect of problem-based learning on fifth-grade students in social field*. Unpublished master's thesis, National Chiayi University, Chiayi, Taiwan.]

- \* 李志忠（2004）。問題導向學習在高職電機科電工機械課程學習成效之實驗研究。國立彰化師範大學工業教育學系碩士論文，未出版，彰化市。

[Lee, C.-Z. (2004). *An experimental study of problem-based learning in electrical mechanical curriculum of vocational school*. Unpublished master's thesis, National Changhua University of Education, Changhua, Taiwan.]

- \* 李欣憶（2006）。問題導向學習應用於高中地理海岸環境議題教學之研究。國立臺灣師範大學地理學系碩士論文，未出版，臺北市。

[Li, H.-Y. (2006). *The application of the problem-based learning strategy for teaching coastal problems in senior high school geography*. Unpublished master's thesis, National Taiwan Normal University, Taipei, Taiwan.]

\* 李海燕 (2010)。以問題導向學習策略運用自由軟體建構鄉土課程之研究。國立聯合大學資訊與社會研究所碩士論文，未出版，苗栗縣。

[Li, H.-Y. (2010). *The research of using strategic of problem-based learning with free software to construct native curriculum*. Unpublished master's thesis, National United University, Taichung, Taiwan.]

李筱雲 (2008)。不同問題結構的問題本位學習對八年級學生自我導向科學學習表現之影響。中原大學教育研究所碩士論文，未出版，桃園縣。

[Li, S.-Y. (2009). *The effectiveness of the problem-based learning in different problem structures on the self-directed science learning performance of eighth-grade students*. Unpublished master's thesis, Chung Yuan Christian University, Taoyuan, Taiwan.]

沈戊忠 (2005)。簡介 PBL 以及在臺灣實施的情形。教育研究月刊，**129**，40-47。

[Shen, W.-C. (2005). Introduction of PBL and implementation in Taiwan. *Journal of Education Research*, 129, 40-47.]

\* 林沛萱 (2008)。問題導向之學習單對七年級學生參觀國立臺灣科學教育館學習成效之研究。國立臺灣師範大學科學教育研究所在職進修班碩士論文，未出版，臺北市。

[Lin, P.-H. (2008). *The effectiveness of problem-based learning sheet on science achievement of seventh graders on visiting the National Taiwan Science Education Center*. Unpublished master's thesis, National Taiwan Normal University, Taipei, Taiwan.]

\* 林春壬 (2009)。問題本位學習對國小資優生合作學習技巧以批判思考之影響。國立高雄師範大學特殊教育學系碩士論文，未出版，高雄市。

[Lin, C.-J. (2009). *The effects of the problem based learning on cooperative skills and critical thinking of elementary gifted pupils*. Unpublished master's thesis, National Kaohsiung Normal University, Kaohsiung, Taiwan.]

林詩華 (2004)。「傳統主題導向學習法」、傳統「問題引導學習法」及網路「問題引導學習法」學習成效之比較研究。國立交通大學理學院網路學習在職專班碩士論文，未出版，新竹縣。

[Lin, S.-H. (2003). *A comparative study of student's achievement by subject-based learning, problem-based learning and web-based problem-based*

*learning*. Unpublished master's thesis, National Chiao Tung University, Hsinchu, Taiwan.]

- \* 張淑宜 (2007)。運用問題本位學習於自然與生活科技領域對國小學生創造力的影響。國立臺中教育大學特殊教育學系在職專班碩士論文，未出版，臺中市。

[Chung, S.-I. (2007). *The effects of problem-based learning in subject area of nature and life technology on elementary students' creativity*. Unpublished master's thesis, National Taichung University of Education, Taichung, Taiwan.]

教育部 (2004)。國民教育社群網——九年一貫課程綱要。2009 年 12 月 15 日，取自：<http://teach.eje.edu.tw/9CC/>

[Ministry of Education. (2004). *Taiwan elementary and secondary educator community -- Grade 1-9 curriculum guidelines*. Retrieved December 15, 2009, from <http://teach.eje.edu.tw/9CC/>]

- \* 莊舒閔 (2005)。問題本位學習對國一學生科學學習與創造性問題解決能力之影響：以「消化」單元為例。國立高雄師範大學科學教育研究所碩士論文，未出版，高雄市。

[Chuang, S.-M. (2005). *Effects of problem-based learning integrating into the digestion unit on the science learning and the creative problem solving abilities of seven-grade students*. Unpublished master's thesis, National Kaohsiung Normal University, Kaohsiung, Taiwan.]

- \* 陳怡伶 (2009)。「問題本位學習」教學對國小三年級學生在綜合活動領域學習效果之影響。國立雲林科技大學技術及職業教育研究所碩士論文，未出版，雲林縣。

[Chen, I.-L. (2009). *The effects of problem-based learning approach on elementary grade three integrated activity classes*. Unpublished master's thesis, National Yunlin University of Science and Technology, Yunlin, Taiwan.]

- \* 陳珽名 (2006)。「問題本位學習」教學模式對國小五年級學生數學科學習動機、學習態度與學習成就之影響。中原大學教育研究所碩士論文，未出版，桃園縣。

[Chen, C.-M. (2006). *The impact of the problem-based learning teaching model on the mathematics learning motivation, mathematics learning attitudes and learning achievement of fifth-grade students*. Unpublished master's thesis, Chung Yuan Christian University, Taoyuan, Taiwan.]

\* 陳建樺（2009）。問題本位學習對四年級學童問題解決、批判思考及概念改變之影響。中原大學教育研究所碩士論文，未出版，桃園縣。

[Chen, C.-H. (2009). *The effectiveness of problem-based learning on problem solving, critical thinking and conceptual change of fourth-grade students*. Unpublished master's thesis, Chung Yuan Christian University, Taoyuan, Taiwan.]

\* 陳美華（2009）。「問題本位學習」對國二學生數學學習態度與數學學習策略之影響。中原大學教育研究所碩士論文，未出版，桃園縣。

[Chen, M.-H. (2009). *The impact of problem-based learning on the mathematics learning attitudes and mathematics learning strategies of eighth graders*. Unpublished master's thesis, Chung Yuan Christian University, Taoyuan, Taiwan.]

陳毓凱（2004）。「問題本位學習」教學模式對國中二年級學生自我導向科學學習傾向與科學學習動機之影響。中原大學教育研究所碩士論文，未出版，桃園縣。

[Chen, Y.-K. (2004). *The effectiveness of the problem-based learning teaching model on the self-directed science learning readiness and science learning motivation of eighth-grade students*. Unpublished master's thesis, Chung Yuan Christian University, Taoyuan, Taiwan.]

陳鼎仁（2003）。不同認知型態分組之問題導向合作學習對技職校院學生電腦網路技術學習成效及問題解決學習成效。國立彰化師範大學工業教育學系碩士論文，未出版，彰化縣。

[Chen, T.-J. (2003). *The study of learning performances of students in vocational colleges on computer network technology and problem solving by problem based learning and cooperative learning in different cognitive style grouping*. Unpublished master's thesis, National Changhua University of Education, Changhua, Taiwan.]

\* 曾孟慧（2006）。「問題本位學習」教學模式對五年級學童數學學習的數學態度和後設認知之影響。中原大學教育研究所碩士論文，未出版，桃園縣。

[Tseng, M.-H. (2006). *The impact of the problem-based learning teaching model on the mathematics learning attitudes and metacognition of fifth-grade students*. Unpublished master's thesis, Chung Yuan Christian University, Taoyuan, Taiwan.]

曾婉宜 (2007)。國內問題本位學習與學科本位學習對學生學習成效影響之統合分析。中原大學教育研究所碩士論文，未出版，桃園縣。

[Tzeng, W.-I. (2007). *The effects of students learning of problem-based learning and subject-based learning in Taiwan: A meta-analysis*. Unpublished master's thesis, Chung Yuan Christian University, Taoyuan, Taiwan.]

\* 曾鈴惠 (2006)。問題本位學習在國小高年級環境藝術教育教學應用之研究。國立臺北教育大學藝術與藝術教育學系碩士論文，未出版，臺北市。

[Tseng, D. (2006). *A study on the applications of problem-based learning in the environmental art education for the high grade students of the elementary school*. Unpublished master's thesis, Taipei National University of the Arts, Taipei, Taiwan.]

\* 黃詠順 (2008)。問題本位學習對國小五年級學童自然科學習態度與學習成就之影響。中原大學教育研究所碩士論文，未出版，桃園縣。

[Huang, Y.-S. (2008). *The impact of problem-based learning on the learning attitude and learning achievement of 5th grade students in science*. Unpublished master's thesis, Chung Yuan Christian University, Taoyuan, Taiwan.]

Albanese, M. A., & Mitchell, S. (1993). Problem-based learning: A review of literature on its outcomes and implementation issues. *Academic Medicine*, 68, 52-81.

Barrows, H. S. (1985). *How to design a problem-based curriculum for the preclinical years*. New York: Springer.

Barrows, H. S. (1996). Problem-based learning in medicine and beyond: A brief overview. *New Directions for Teaching and Learning*, 68, 3-11.

Baxter, G. P., & Shavelson, R. J. (1994). Science performance assessments: Benchmarks and surrogates. *International Journal of Educational Research*, 21, 279-299.

Berkson, L. (1993). Effectiveness of problem-based curricula: Research and theory. *Academic Medicine*, 68, 579-588.

Bridges, E. M. (1992). *Problem based learning for administrators*. Eugene, OR: ERIC Clearinghouse on Educational Management.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.

- Colliver, J. A. (2000). Effectiveness of problem-based learning curricula: Research and theory. *Academic Medicine*, 75, 259-266.
- Dennis, J. K. (2003). Problem-based learning in online vs. face-to-face environments. *Education for Health*, 16, 198-209.
- Dochy, F., Segers, M., Van den Bossche, P., & Gijbels, D. (2003). Effects of problem-based learning: A meta-analysis. *Learning and Instruction*, 13, 533-568.
- Gallagher, S. A., & Stepien, W. J. (1996). Content acquisition in problem-based learning: Depth versus breadth in American Studies. *Journal for the Educational Gifted*, 19, 257-275.
- Gijbels, D., Dochy, F., Van den Bossche, P., & Segers, M. (2005). Effects of problem-based learning: A meta-analysis from the angle of assessment. *Review of Educational Research*, 75, 27-61.
- Hartling, L., Spooner, C., Tjosvold, L., & Oswald, A. (2010). Problem-based learning in pre-clinical medical education: 22 years of outcome research. *Medical Teacher*, 32, 28-35.
- Hedges, L., & Olkin, I. (1985). *Statistical methods for meta-analysis*. San Diego, CA: Academic.
- Hmelo, C. E., & Ferrari, M. (1997). The problem-based learning tutorial: Cultivating higher order thinking skills. *Journal for the Education of the Gifted*, 20, 401-422.
- Jonassen, D. H. (2000). Toward a design theory of problem solving. *Educational Technology Research and Development*, 48(4), 63-85.
- Maung, M., Abas, Z. W., & Abdullah, A. (2006). Utilisation of different resources for self-directed learning by students undergoing an integrated problem-based medical curriculum. *Journal of Institutional Research in South East Asia*, 4, 17-24.
- Michel, M. C., Bischoff, A., & Jakobs, K. H. (2002). Comparison of problem- and lecture-based pharmacology teaching. *Trends in Pharmacological Sciences*, 23, 168-170.
- Peters, A. S., Greenberger-Rosovsky, R., Crowder, C., Block, S. D., & Moore, G. T. (2000). Long-term outcomes of the new pathway program at Harvard Medical School: A randomized controlled trial. *Academic Medicine*, 75, 470-479.

- Rosenthal, R. (1991). *Meta-analytic procedures for social research*. Newbury Park, CA: Sage.
- Schmidt, H. G., van der Molen, H. T., Te Winkel, W. W. R., & Wijnen, W. H. F. W. (2009). Constructivist, problem-based learning does work: A meta-analysis of curricular comparisons involving a single medical school. *Educational Psychologist, 44*, 227-249.
- Segers, M., Dochy, F., & de Corte, E. (1999). Assessment practices and students' knowledge profiles in a problem-based curriculum. *Learning Environments Research, 2*, 191-213.
- Sendag, S., & Odabashi, H. F. (2009). Effects of an online problem based learning course on content knowledge acquisition and critical thinking skills. *Computers & Education, 53*, 132-141.
- Shavelson, R. J., Gao, X., & Baxter, G. P. (1996). On the content validity of performance assessments: Centrality of domain specification. In M. Birenbaum & F. Dochy (Eds.), *Alternatives in assessment of achievements, learning processes and prior learning* (pp. 131-143). Boston, MA: Kluwer Academic Press.
- Stepien, W. J., & Pyke, S. L. (1997). Designing problem-based units. *Journal for the Education of the Gifted, 20*, 380-400.
- Strobel, J., & van Barneveld, A. (2009). When is PBL more effective? A meta-synthesis of meta-analyses comparing PBL to conventional classrooms. *The Interdisciplinary Journal of Problem-Based Learning, 3*(1), 44-58.
- Tiwari, A., Lai, P., So, M., & Yuen, K. (2006). A comparison of the effects of problem-based learning and lecturing on the development of students' critical thinking. *Medical Education, 40*, 547-554.
- Torp, L., & Sage, S. (2002). *Problems as possibilities: Problem-based learning for K-16 Education*. Alexandria, VA: Association for Supervision & Curriculum Deve.
- Udall, A. J., & Daniels, J. E. (1991). *Creating the thoughtful classroom*. Tucson, AR: Zephyr Press.
- Vernon, D. T., & Blake, R. L. (1993). Does problem-based learning work? A meta-analysis of evaluative research. *Academic Medicine, 68*, 550-563.
- Walker, A., & Leary, H. (2009). A problem based learning meta-analysis: Differences across problem types, implementation types, disciplines,

and assessment levels. *The Interdisciplinary Journal of Problem-Based Learning*, 3(1), 12-43.

Wirkala, C., & Kuhn, D. (2011). Problem-based learning in K-12 education: Is it effective and how does it achieve its effects? *American Educational Research Journal*, 48, 1157-1186.