## An Action Research of the Ninth Grades Disadvantaged Students by Using the Self-Regulated Learning in Science...

## 辜炯翰、郎亞琴

E-mail: 381838@mail.dyu.edu.tw

## **ABSTRACT**

This study explored how the disadvantaged students used skills of self-regulated learning in some science competitions, and their self-learning effects. The study adopted action research approach to examine teaching process and observe four disadvantaged ninth-grade students of a middle high school in Nantou County. The whole class including those four students received 12 consecutive weeks (24 periods) of self-regulated learning curriculum. The researcher recorded self-regulated learning and teaching process with video camera, did class observations, checked student worksheets, and compared science competition results. Then, the research wrote his reflections, did interviews with those four students, and analyzed the collected information. The major findings are summarized as follows: Firstly, the four disadvantaged students showed positive attitude by using self-regulated learning in science competitions in the three areas: learning enthusiasm, active learning, and learning achievement. Secondly, the use of self-regulated learning for disadvantaged students in science competitions can effectively improve their learning strategies. Thirdly, in the process of action research, the research paid more attention to those disadvantaged students ' special needs, which helped him learn more about the disadvantaged students, and improved teaching skills and quality.

Keywords: disadvantaged students, self-regulated learning, science competitions, action research

Table of Contents

中文摘要 iii 英文摘要 iv 誌謝辭

v 目錄 vi 表目錄

viii 圖目錄 ix 第一章 緒論 第一節 研究動機 1 第二

節 研究目的與問題 5 第三節 名詞解釋 8 8 9 9 6 第四節 研究範圍與限制

8 第二章 文獻探討 第一節 弱勢學生之相關研究 10 第二節 自主學習之理論與應用 19 第三節 科學競賽之相關研究 31 第四節 弱勢學生科學自主學習之相關研究

32 第三章 研究方法 第一節 研究設計理念與架構 37 第二節 對象與場域

方案設計 52 第六節 資料蒐集與分析 53 第四章 研究結果與討論 第一節 弱勢學

生自主學習教學歷程分析 56 第二節 弱勢學生自主學習分析 82 第三節 教學歷程中所遭遇的困難與解決策略

91 第五章 結論與建議 第一節 結論 94 第二節 建議 97 參考文獻 106 附錄C科學競賽學習錄A自主學習通知單 105 附錄B自主學習教案 106 附錄C科學競賽學習

120 附錄F學生訪談大綱 121

## **REFERENCES**

壹、中文部分王芳珠(2010)。國小四年級科學趣味競賽教學之研究(未出版之碩士論文)。臺北教育大學,臺北市。何雅婷(2009)。國中單親家庭學生自我概念與學業成就相關性之研究(未出版之碩士論文)。佛光大學,宜蘭縣。李育樺(2006)。科學創意競賽活動對國小三年級學童對科學的態度影響之研究(未出版之碩士論文)。國立臺中教育大學,台中市。李家伶(2005)。從社經背景談隔代孩童之學業困境---以嘉義縣兩所國小高年級學童為例(未出版之碩士論文)。南華大學,嘉義縣。林俊瑩(2012)。班級族群組成對學生學業成績的影響。臺北市立教育大學學報,43(1),93-120。林建平(2010)。低成就學童的家庭環境與自我調整學習之研究。新竹教育大學教育學報,27(1),93-125。林為菲(2007)。國小實施隔代教養、單親家庭兒童學習輔導成效之個案研究-以彰化縣執行epa之國小為例(未出版之碩士論文)。國立嘉義大學,嘉義市。邱仁佑(2008)。科技競賽對國中生活科技教學影響研究-以桃園縣科學金頭腦計畫為例(未出版之碩士論文)。國立臺灣師範大學,台北市。邱珍琬(2010)。國中生在隔代教養下的家庭教育。家庭教育與諮商學刊(8),33-66。邱婷英(2011)。以級任導師觀點探討隔代教養學童之學校生活適應(未出版之碩士論文)。臺洲大學,臺中市。孫珮嘉(2012)。自我教導策略對國中學習障礙學生正負數加減運算之學習成效(未出版之碩士論文)。臺北教育大學,臺北市。莊淑芬、張美珍(2011)。國小學童參觀科學博物館之自我調整學習與科技概念學習。科技博物,15(1),33-62。

郭千惠(2012)。美國「帶起每個孩子法案」之教育績效評估制度及其啟示。學校行政(77),64-88。 陳宜君、葉靖雲(2009)。自 我調整寫作策略教學對國小學習障礙學生寫作表現之影響。中華民國特殊教育學會年刊(98年度),139-156。 陳美貞(2011)。改變 數學課堂教學活動對學習低成就的學生之影響(未出版之碩士論文)。淡江大學,臺北市。 陳淑麗(2008)。國小弱勢學生課業輔導 現況調查之研究。臺東大學教育學報,19(1),1-32。 陳淑蘭(2011)。新北市新移民與非新移民子女國小高年級學生學習態度與學 習成效之研究(未出版之碩士論文)。國立臺北教育大學,台北市。 陳惠芬(2000)。「科學趣味競賽」引入國小教學活動成效研究--以水火箭之學習環模組為例(未出版之碩士論文)。臺中師範學院,台中市。 游光昭、林坤誼、洪國峰(2010)。從反思與實踐看國 中生在科技實作活動中的學習歷程表現。課程與教學,13(3),219-250。 黃子育(2009)。單親家庭學童學習行為之個案研究-以台 北縣某私立課後照顧機構個案學童為例(未出版之碩士論文)。臺北市立教育大學,台北市。 黃文昌(2012)。科學競賽遊戲教學對 提升國中生科學問題解決能力之行動研究(未出版之碩士論文)。國立臺東大學,台東縣。 黃毓杏(2010)。自主學習者模式(alm)在 國小高年級自然科學教學之行動研究(未出版之碩士論文 )。臺北教育大學,臺北市。 葉靖雲(2011 )。學習不利學生的科學教育困 境與需求~以學習障礙生為例。中華民國特殊教育學會年刊(100年度),261-281。 廖育鋒(2011)。新移民子女家庭環境、母親管教 方式與學業成就相關之研究(未出版之碩士論文)。雲林科技大學,雲林縣。劉于嘉(2004)。科學趣味競賽對國中生自然科學習的 影響(未出版之碩士論文)。臺灣師範大學,臺北市。 劉瑾珊(2007)。自我教導策略對輕度身心障礙者不當口語行為影響之研究( 未出版之碩士論文)。國立嘉義大學,嘉義市。 蔡清田(2007)。課程行動研究的實踐之道。課程與教學,10(3),75-89。 魏曉寧 (2012)。遊戲活動方案應用於國小五年級學習障礙學生寫作教學之行動研究(未出版之碩士論文)。中國文化大學,台北市。 譚以 敬、吳清山(2009)。臺北市弱勢學生教育政策的現況及其未來因應措施之研究。教育行政與評鑑學刊,8,77-94。 貳、西文部分 Andreassen, R. & Braten, I. (2011). Implementation and effects of explicit reading comprehension instruction in fifth-grade classrooms. Learning and Instruction, 21, 520-537. Clarebout, G., Horz, H., & Schnotz, W. (2010). The relations between self-regulation and the embedding of support in learning environments. Educational Technology Research and Development, 58(5), 573-587. Cleary, T. J., & Zimmerman, B. J. (2004). Self-regulation empowerment program: A school-based program to enhance self-regulated and self-motivated cycles of student learning. Psychology in the Schools, 41, 537-550. Cleary, T.J., & Chen, P.P. (2009). Self-regulation, motivation, and math achievement in middle school: variations across grade level and math context. Journal of School Psychology, 47 (5), 291-314. De Corte, E., Mason, L., Depaepe, F., & Verschaffel, L. (2011). Self-regulation of mathematical knowledge and skills. In B. J. Zimmerman, & D. H. Schunk (Eds.), Handbook of self-regulation of learning and performance (pp. 155-172). New York: Routledge. 21 Duijnhouwer, H., Prins, F. J., & Stockking, K. M. (2010). Progress feedback effects on students' writing mastery goal, self-efficacy beliefs, and performance. Educational Research and Evaluation, 16, 53-74. Elstad, E., & Turmo, A. (2010). Students 'self-regulation and teacher's influence in science: Interplay between ethnicity and gender. Research in Science & Technological Education, 28 (3), 249-260. Gibson, M., Hauf, P., & Long, B. S. (2011). Reflective practice in service learning: Possibilities and limitations. Education & Training, 53 (4), 284-296. 22 Jarvela, S., & Jarvenoja, H. (2011). Socially constructed self-regulated learning and motivation regulation in collaborative learning groups. Teachers College Record, 113(2), 350-374. Kistner, S., Rakoczy, K., & Otto, B. (2010). Promotion of self-regulated learning in classrooms: Investigating frequency, quality, and consequences for student performance. Metacognition and Learning, 5 (2), 157-171. Kolovelonis, A., Goudas, M., & Dermitzaki, I. (2011). The effect of different goals and self-recording on self-regulation of learning a motor skill in a physical education setting. Learning and Instruction, 21 (3), 355-364. 23 Lee, J.Q., McInerney, D.M., & Liem, G.A. (2010). The relationship between future goals and achievement goal orientations: An intrinsic-extrinsic motivation perspective. Contemporary Educational Psychology, 35 (4), 264-279. Malmberg, J., Jarvenoja, H., Jarvela, S. (2010). Tracing elementary school students' study tactic use in gstudy by examining a strategic and self-regulated learning. Computers in Human Behavior, 26 (5), 1034-1042。 Stoeger, H., & Ziegler, A. (2011). Self-regulatory training through elementary-school students 'homework completion. In B. J. Zimmerman, & D. H. Schunk (Eds.), Handbook of self-regulation of learning and performance (pp. 87-101). New York: Routledge, Tonks, S. M., & Taboada, A. (2011). Developing self-regulated readers through instruction for reading engagement. In B. J. Zimmerman, & D. H. Schunk (Eds.), Handbook of self-regulation of learning and performance (pp. 173-186). New York: Routledge. Wigfield, A., Klauda, S. L., & Cambria, J. (2011). Influences on the development of academic self-regulatory processes. In B. J. Zimmerman, & D. H. Schunk (Eds.), Handbook of self-regulation of learning and performance (pp.33-48). New York: Routledge. Winne, P. H. (2009). Self-regulated learning viewed from models of information processing. In B. J. Zimmerman & D. H. Schunk (Eds.), Self-regulated learning and academic achievement, (2nd ed.) (pp. 153-189). New York: Routledge. Wolters, C.A. (2011). Regulation of motivation: Contextual and social aspects. Teachers College Record, 113(2), 265-283. Zimmerman, B. (2000). Self-efficacy: an essential motive to learn. Contemporary Educational Psychology, 25(1), 82-91. Zimmerman, B. J. (2004). Sociocultural influence and students ' development of academic self-regulation: A social-cognitive perspective. In D. M. McInerney & S. Van Etten (Eds.), Big theories revisted (pp.139-164). Greenwhich, CT: Information Age. Zimmerman, B. (2008). Investigating self-regulation and motivation: Historical background, methodological developments, and future prospects. American Educational Research Journal, 45(1), pp. 166-183.