

基於情境認知理論探究無所不在學習與學習成效之研究

楊明達、晁瑞明

E-mail: 9607631@mail.dyu.edu.tw

摘要

本研究旨在探討一個以學習者為本位的學習環境之無所不在學習成效，藉由無線網路、行動載具，讓學習能融入真實生活環境，提供相關的情境學習活動給予學習者練習，並採用適當的教學策略對無所不在學習成效的影響以進行探討。研究結果得知，教學策略、教學理論、教學環境皆呈現顯著水準。影響學習滿意度的原因變數中，以教學理論為最大影響效果，亦即本研究所採用之情境學習理論能使學習者感到滿意程度越高，則使學習成效相對提昇。且由分析結果可得知學習滿意度與學習成效的相關程度，而本研究採用建構與鷹架理論之概念於學生英語學習中，此種教學策略確實能提昇學習者之學習滿意度進而提昇學習者之學習成效。

關鍵詞：無所不在學習環境；情境學習；英語學習；學習成效

目錄

中文摘要	iii	英文摘要	iii
iv 誌謝辭		v 內容目錄	v
vi 表目錄		viii 圖目錄	viii
ix 第一章 緒論	1	第一節 研究背景與動機	1
1 第二節 研究目的	2	第三節 研究範圍與限制	2
5 第四節 研究流程	6	第二章 文獻探討	6
8 第一節 無所不在學習	8	第二節 情境學習理論	8
13 第三節 教學策略	20	第四節 學習滿意度	20
25 第五節 學習成效	26	第三章 研究方法	26
28 第一節 研究理論與架構	28	第二節 研究假說	28
31 第三節 研究設計	36	第四節 學習環境架構	36
40 第五節 英語學習環境建置	41	第六節 教學流程	41
43 第七節 研究對象	44	第八節 研究	44
變數及操作型定義	44	第九節 問卷設計	46
與分析方法	49	第十節 統計	52
結果與分析	55	第一節 敘述統計分析	55
因素分析與信度分析	56	第二節	55
第四節 單因子變異數分析	63	第三節 路徑分析與假說檢定	60
第六節 小結	69	第五節 學習滿意度與學習成效之分析	66
71 第一節 結論	71	第五章 結論與建議	71
73 參考文獻	75	第二節 建議	71
90		附錄 研究問卷	75

參考文獻

一、中文部份 Armstrong, T. (1997), 經營多元智慧---開展以學生為中心的教學(李平譯), 台北:遠流出版公司, (原文於1994年出版)。王秋華(2001), 網路教學之學生學習行為與學習意度及學習績效的關係, 私立大葉大學資訊管理研究所未出版之碩士論文。王宗斌(1999), 訓練方式、電腦自我效能及學習型態對學習績效的影響-網頁設計時地研究, 國立中央大學資訊管理研究所未出版之碩士論文。朱則剛(1994), 建構主義知識論的起源與近代哲學知識論的趨勢, 教育工學的發展與派典演化, 台北:師大書院, 173-219。邱貴發(1992), 電腦輔助教學成效探討, 視聽教育雙月刊, 33(5), 11-18。邱貴發(1994), 電腦輔助學習的理念與發展方向, 教學科技與媒體, 2, 15-22。林寶山(1995), 教學論 理論與方法, 台北:五南書局。林珊如, 袁賢銘, 劉旨峰, 鄭明俊(1991), 研討會模式之網路學習系統建製經驗, 資訊與教育, 82, 50-62。李隆盛(1996), 科技與職業教育的課題。台北:師大書苑。高廣孚(1995), 教學原理, 台北:五南書局。幸曼玲(1984), 從情境認知看幼兒教育, 初等教育學刊, 3, 165-188。張春興(1996), 教育心理學—三化取向的理論與實踐, 台北:東華書局。張靜譽(1996), 傳統教學有何不妥? 建構與教學[線上資料], 來源: <http://www.bio.ncue.edu.tw/c&t/issue1-8/v4-1.htm> [2006, July 12]。

楊文金(1998), 同儕互動的社會本質, 屏師科學教育, 8, 2-11。鄭晉昌(1993), 自「情境學習」的認知觀點探討電腦輔助中教材內容的設計 - 從幾個教學系統談起, 教學科技與媒體雙月刊, 12, 3-14。陳忠志, Taylor, P. C., & Aldridge, J. M. (1998), 國中教師科學本質及科學教學信念對理化教室環境的影響, 科學教育學刊, 6, 383-402。陳美玉(1998), 教師專業 - 教學法的省思與突破, 台北:麗文文化公司。陳冠州(1994), 建構式教學法在國小數學科之探討, 教師之友, 35(5), 37-44。陳慧娟(1991), 情境學習理論的理想與現實[線上資料], 來源: <http://www.socialwork.com.hk/artical/educate/gz12.htm> [2006 July 4]。楊文金(1998), 同儕互動的社會本質, 科學教育, 8, 2-11。幸曼玲(1995), 當前兒童發展理論與研究對教育的啟示, 教育資料與研究, 4, 2-13。陳育民(2003), 學習風格與學習模式對中學生電子化學習成效之影響, 國立中正大學資訊管理研究所未出版之碩士論文。黃國禎, 邱瓊慧(2005), 優化學習計劃--高效能實境學習與數位學習整合環境之建置, 國立臺南大學技術報告。黃國禎(2005), U-Learning 環境的構成要件與情境參數[線上資料], 來源: <http://www.elearn.org.tw/KMC/ExpertUploadFiles/U-Learning環境的構成要件與情境參數2005-12-7A.pdf> [2006, July 21]。黃國禎(2005), U-Learning 時代的來臨與挑戰[線上資料], 來源: <http://www.elearn.org.tw/KMC/ExpertDefaultArticles/U-Learning時代的來臨與挑戰.pdf> [2006, July 21]。鄒景平(2005), 美國學習科技應用的新趨勢與啟示 [線上資料], 台大教與學期刊電子報, 31, 來源: http://edtech.ntu.edu.tw/epaper/931210/prof/prof_2.asp [2006, December 21]。張世忠(2003), 建構取向教學 - 數學與科學, 台北:五南書局。張靜譽(1996), 傳統教學有何不妥, 建構與教學, 4, 1-4。張菡珍(1997), 鷹架理論在成人教學實務之應用, 成人教育雙月刊, 40, 43-52。蔡崇元(2001), 網路教學者教學互動策略之研究-以大學推廣教育教師為例, 國立台灣師範大學社會教育學所之未出版碩士論文。鄭晉昌(1993), 電腦輔助學習的新教學設計觀 - 認知學徒制, 教育資料與圖書館學, 31(1), 55-66。鄭明章(1999), 國立空中大學嘉義地區學生學習方式、學習參與程度與學習成效之研究, 國立中正大學成人及繼續教育研究所未出版之碩士論文。二、英文部份 Alavi, M., Wheeler, B.C., & Valacich, J.S. (1995). Using IT to re-engineer business education: An exploratory investigation of collaborative elearning. *MIS Quarterly*, 19, 293-312. Alavi, M., Yoo, Y., & Vogel, E.R. (1997). Using information technology to add value to management education. *Academy of Management Journal*, 40(6), 1310-1333. Baroudi, J. J., & Orlikowski, W. J. (1988). A Short-Form Measure of User Information Satisfaction: A Psychometric Evaluation and Notes on Use. *Journal of Management Information Systems*, 4, 44-59. Barua, A., Chellapa, R., & Whinston, A. B. (1995). Collaboratory in cyberspace: Theoretical foundation and an implementation. *Journal of Organizational Computing*, 5(4), 417-442. Bodner, G. M. (1986). Constructivism: A theory of knowledge. *Journal of Chemical Education*, 63(10), 873-878. Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher*, 18(1), 32-41. Brown, A. L., & Campione, J. C. (1994). Guided discovery in a community of learners. In K. McGilly (Ed.), *Classroom lessons: Integrating cognitive theory and classroom practice*, Cambridge, MA: MIT Press/ Bradford Books, 229-272. Blackler, F. (1995). Knowledge, knowledge work and organizations: an overview and interpretation. *Organization Studies*, 16(6), 1021-1046. Bulter-Pascoe, M. E., & Wiburg, K. M. (2003). Technology and teaching English language learners. New York: Allyn and Bacon. Chan, D. S. K. (2001). Combining qualitative and quantitative methods in assessing hospital learning environments. *International Journal of Nursing Studies*, 38, 447-459. Chen, Y.S., Kao, T.C., Sheu, J.P., & Chiang, C.Y. (2002). A Mobile Scaffolding-Aid-Based Bird-Watching Learning System. *Proceedings of IEEE International Workshop on Wireless and Mobile Technologies in Education*, 15-22. Cheng, Z., Sun, S., Kansen, M., Huang, T., & He, A. (2005). A personalized ubiquitous education support environment by comparing learning instructional requirement with learner's behavior. *19th International Conference on Advanced Information Networking and Applications*, 567-573. Chidambaram, L. (1996). A study of relational development in computer supported groups. *MIS Quart*, 29(2), 143-165. Choi, J., & Hannafin, M., (1995). Situated cognition and learning environments: Roles, structures, and implications for design. *Educational Technology Research & Development*, 43(2), 53-69. Chuang, S. C., & Tsai, C. C. (2005). Preferences toward the constructivist internet-based learning environments among high school students in Taiwan. *Computers in Human Behavior*, 21, 255-272. Curtis, M., Luchini, K., Bobrowsky, W., C., Quintana, C., & Soloway, E. (2002). Handheld Use in K-12: A Descriptive Account, *Proceedings of IEEE International Workshop on Wireless and Mobile Technologies in Education*, 23-30. Dewey, J. (1938). *Experience and education*. New York : Macmillan. Domer D. E., Carswell J. W. & Spreckelmeyer K. F. (1983). *Understanding Educational Satisfaction*. The University of Kamsas School of Architecture and Urban design. (ERIC Document Reproduction Service No. ED 232 600). Duffy, T. M., & Jonassen, D. H. (1992). Constructivism: New implications for instructional technology. In T.M.Duffy & D. H. Jonassen (eds.), *Constructivism and the technology of Instruction: A conversation*, Hillsdale, New Jersey: Lawrence Erlbaum Associates, 1-16. Feeney, L., Ahlgren, B., & Westerlund, A. (2001). Spontaneous Networking: An Application-Oriented Approach to Ad Hoc Networking. *IEEE Comm. Magazine*, 39(6), 176 – 181. Flammger, D. M. (1991). Nontraditional students and postsecondary school satisfaction. ERIC Document Reproduction Service No. ED 362077. Gallupe, R. B., Dennis, A. R., Cooper, W. H., Valacich, J. S., Bastianutti, L. M., & Nunamaker, J. F. (1992). Electronic brainstorming and group size. *Academy of Management Journal*, 35(2), 350-369. Hannafin, M., & Land, S. (1997). The foundations and assumptions of technology enhanced student centered learning environments. *Instructional Science*, 25(3), 167-202. Hiltz, S. R. (1997). Impacts of College-level courses via Asynchronous Learning Networks: Some Preliminary Results. *Asynchronous Learn Networks*, 1(1), 1-19. Hoffman, J. L., Wu, H., Krajcik, J. S., & Soloway, E. (2003). The nature of middle school learners' science content understandings with the use of on-line resources, *Journal of Research in Science Teaching*, 40(3), 323-346. Kaiser, H.F. (1974). An Idea of Factorial Simplicity, *Psychometrika*, 39, 31-36. Kaiser, H. F., & Rice, J. (1994). Little jiffy mark IV. *Educational and Psychological Measurement*, 34(1), 111-17. Kearsley, G. (1999). *Explorations in Learning & Instruction: The Theory Into Practice Database*[Online]. Available: <http://www.gwu.edu/~tip/> [10th August 2006] Kemp, W. H., & Schwaller, A. E. (1988). Introduction to instructional strategies. In W. H. Kemp and A. E. Schwaller (Ed.), *Instructional strategies for technology education 37th yearbook*, Encino, CA: Glencoe. Kerwin, M. A. (1981). Student involvement as a dimension of the student perceived teaching behavior of postsecondary educators. *Adult Education*, 31(2), p.85-92. Kindberg, T.,

& Fox, A. (2002). System Software for Ubiquitous Computing ", Pervasives Computing. JANUARY – MARCH, 70-81. Kwon, K., & Suh, E. (2005). ubiES: An Intelligent Expert System for Proactive Services Deploying Ubiquitous Computing Technologies. The 38th Hawaii International Conference on System Sciences, 3-6. Lave, J., & Wenger, E. (1991). *Situated Learning. Legitimate Peripheral Participation*. Cambridge: Cambridge University Press. Lamy, M. N., & Goodfellow, R. (1999). Reflective conversation in the virtual classroom. *Language Learning & Technology*, 2(2), 43-61. Lumsden, L. S. (1994). Student motivation to learn (ERIC Digest No. 92). Eugene, OR: ERIC Clearinghouse on Educational Management. (ERIC Document Reproduction Service No. ED 370 200). Mangano, J. A., & Corrado, T. J. (1979). Adult students' satisfaction at six two-year colleges, Eric Document Reproduction Service No. ED 180-563. Maor, D. (2000). The teacher professional development program on using a constructivist multimedia learning environment. *Learning Environments Research*, 2, 307-330. Mayer, R. E. (1987). Instructional variables that influence cognitive processes during reading. In B.K. Britton and S.M. Glynn (Eds.), *Executive control processes in reading*. NJ: Lawrence Erlbaum Associates. McLellan, H. (1996). Evaluation in a situated learning environment. In H. McLellan, (Ed.). *Situated Learning Perspectives*. Englewood Cliffs, NJ: Educational Technology Publications. McLellan, H. (1996). *Situated Learning Perspectives*. Englewood Cliffs, NJ: Educational Technology Publications. Mergel, B. (1998). FYI-An informative overview: Instructional design & learning theory, Accessed on 4 May 2004. Minami, M., Morikawa, H., & Aoyama, T. (2004). The design of naming-based service composition system for ubiquitous computing applications. 2004 International Symposium on Applications and the Internet Workshops, 26, 304-312. Oliva, P. F. (1992). *Developing the Curriculum* (3rd Ed.). New York: Harper Collins Publishers. Osborne, R., J., & Wittrock, M., C. (1983). Learning science: A generative process. *Science Education*, 67(4), 489-508. Piccoli, G., Ahmad, R., & Ives B. (2001). Web-Based Virtual Learning Environment: A Research Framework and a Preliminary Assessment of Effectiveness in Basic IT Skill Training, *MIS Quarterly*, 25(4), 401-426. Raimes, A. (1983). Techniques in teaching writing. New York: Oxford University Press. Rieber, L. P. (1993). A pragmatic view of instructional technology. In K. Tobin (Ed.), *The practice of constructivism in science education*. Washington, D. C: AAAAS Press. Roblyer, M. D., & Knezek, G. A. (2003). New millennium research for educational technology: A call for a national research agenda. *Journal of Research on Technology in Education*, 36(1), 60-71. Rogoff, B. (1990). *Apprenticeship in thinking: Cognitive development in social context*. New York: Oxford University Press. Rogoff, B. (1995). Observing sociocultural activities on three planes: Participatory appropriation, guided participation and apprenticeship. In J. V. Wertsch, P. D. Rio and A. Alvarez (Eds.), *Sociocultural studies of mind*, Cambridge University Press, 139-164. Roschelle, J. (2003). Keynote paper: Unlocking the learning value of wireless mobile devices. *Journal of Computer Assisted Learning*, 19(3), 260-272. Rutenbur, B. W., Spickler, G. C. & Lurie, S. (2000). *ELEARNING The Engine of the Knowledge Economy*. Morgan Keegan & Co., Inc. Scribner, S. (1984). *Studying Working Intelligence*. In B. Rogoff and J. Lave (eds.). *Everyday Cognition: Its Development in Social Context*, Cambridge, MA : Harvard University Press, 9-40. Small, R. V., & Gluck, M. (1994). The relationship of Motivational Conditions to effective instructional attributes: a magnitude scaling approach. *Educational Technology*, 34(10), 33-40. Soldatos, J., Pandis, I., Kostas S., Lazaros P., & Crowley, J. L. (2007). Agent based middleware infrastructure for autonomous context-aware ubiquitous computing services. *Computer Communications*, 30(7), 577-591. Strauss, S. G. (1996). Getting a Clue: Communication Media and Information Distribution Effects on Group Process and Performance. *Small Group Research*, 27(1), 115-142. Suchman, L. A. (1987). *Plans and Situated Action : The Problem of Humanmachine Communication*. New York: Cambridge University Press. Tsoukas, H. (1996). The firm as a distributed knowledge system: a constructionist approach. *Strategic Management Journal*, 17, special issue: knowledge and the firm: 11-25. Tatar, D., Roschelle, J., Vahey, P., & Penuel, W. R. (2003). Handhelds Go To School: Lessons Learned. *IEEE Computer*, 36(9), 30-37. Venkatesh, V., & Davis, F. (1996). A model of the antecedents of perceived ease of use: development and test. *Decision Sciences*, 27(3), 451-481. Von Glasersfeld, E. (1984). *An introduction to radical constructivism*. New York : Norton. Von Glasersfeld, E. (1988). Constructivism as scientific method. *Scientific Reasoning Research Institute Newsletter*, 3(2), 8-9. Von Glasersfeld, E. (1989). Constructivism in education. In T. Husen & Postlethwaite (Eds.), *The international encyclopedia of education. Supplementary encyclopedia of education. Supplementary*, New York: Pergamon Press, 1, 163-163. Vygotsky, L. S. (1978). *Mind in Society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press. Warkentin, M. E., Sayeed, L., & Hightower, R. (1997). Virtual teams versus face-to-face team: An exploratory study of a Web-based conference system. *Decision Sciences*, 28(4), 975-996. Weiser, M. (1991). The computer for the 21st century. *Scientific American*, 265(3), 94-104. White, R. T., & Tisher, R. P. (1986). *Research on natural sciences. Handbook of research on teaching*. New York: Macmillan. Wilson, A. (1993). The promise of situated cognition. In S. Merriam (Ed.), *An update on adult learning theory*. San Francisco: Jossey-Bass, 71-79. Winn, W. (1993). Instructional design and situated learning: Paradox or partnership. *Educational Technology*, 38(3), 16-21. White, R., & Gunstone, R. (1992). Prediction observation- explanation. In R. White & R. Gunstone (Eds.). *Probing understanding*. London: The Falmer Press, 44-64. Wood, D., Bruner, J., & Ross, G. (1976). The role of tutoring in problem solving. *Journal of child psychology and psychiatry*, 17, 89-100. Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The behavioral consequences of service quality. *Journal of Marketing*, 60(2), 31-46.