An Empirical Study of Elementary School Teacher's Continuous Implementation on Integrating Information Technology into T

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ABSTRACT

Integrating information technology into teaching has become an indispensable efficient instrument for teachers in classroom. Although many teachers are satisfied with the outcomes obtained from integrated information technology into teaching, few teachers are continuous to implement this teaching method. The purpose of this study is to explore the factors affecting elementary school teacher ’ s intention of continuous integrating information technology into teaching from school ’ s administrative support and information system usage perspectives.

The research model adopts school administrative support, task-technology fit, and expectation confirmation theory to measure the relationship of intention of continuous integrating information technology into teaching. A questionnaire was administrated to public elementary school teachers in Taichung City and 328 effective samples were collected. Research hypotheses were validated by a structural equation modeling approach. The results revealed: (1)school administrative support, task-technology fit, and satisfaction positively affect elementary school teachers ’ intention of continuous integrating information technology into teaching; (2)perceived usefulness positively affects continuance intention through satisfaction; (3)expectation confirmation positively affects continuance intention through perceived usefulness and satisfaction. The validated model showed satisfaction affecting continuance intention as the strongest path. Based on the findings, implications and recommendations are discussed for education authorities, elementary school teachers, and the future research directions.

Keywords : school administrative support、task technology fit、expectation confirmation theory

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REFERENCES

一、中文部份丁士?(2008)，學校環境因素與個人專業發展對教師資訊科技融入教學影響之研究，大葉大學資訊管理學系未出版之碩士論文。王文裕(2003)，新竹縣國民小學教師進行資訊科技融入教學的現況、意圖及相關因素研究，國立新竹師範學院輔導教學所未出版之

碩士論文。王淑娟，李元恕、黃怡仁、方國定(2008)，建構資訊系統持續使用意圖模式:以中部某大學為實證對象，科技管理學刊，13(4)，1-30。王曉璿(1998)，網路環境與教學應用，教師之友，39(1)，7~13。古鈞元(2002)，教師教學信念與資訊科技融入教學—國中地理教師個案研究，國立臺灣師範大學資訊教育研究所未出版之碩士論文。何純瑩(2010)，影響國中教師使用電子白板關鍵因素之探討，暨南國際大學管理學院經營管理碩士學位學程碩士在職專班未出版之碩士論文。何榮桂(2001)，他山之石可以攻錯-亞太地區(臺、港、新、日、韓)資訊教育的發展與前瞻，資訊與教育雜誌，81，1-6。余鑑、于俊傑、余采芳(2011)，數位學習知覺與使用意圖間影響之研究，電子商務研究，9(3)，323-352。吳正己、吳秀宜(2001)，資訊融入教學實?及相關問題探討—以社會科為?，資訊教育課程設計，163-178。吳明隆(2007)，SPSS操作與應用:問卷統計分析實務，臺北:五南。吳明隆(2009)，結構方程模式Amos的操作與應用，臺北:五南。吳為聖、張惠博、郭重吉(2007)，影響國中自然科教師接受資訊科技融入教學之個人因素研究，科學教育學刊，15(5)，543-563。吳清山(1996)，學校行政，台北:心理。吳萬益(2008)，企業研究方法，台?:華泰。李冠緯(2011)，Wii Fit 持續使用意願之探討:期望確認理論之應用，私立朝陽科技大學休閒管理系未出版之碩士論文。李敏正(2003)，延伸計劃行為理論以預測WWW持續使用之研究，國立高雄第一科技大學資訊管理研究所未出版之碩士論文。李進寶(1997)，資訊網路教育訓練的現況與趨勢，國立花蓮師範學院舉辦之「邁向21世紀教學科技」國際學術研討會論文集(10-1~10-15)，花蓮縣。李豐展(2006)，台北市國小教師教學信念、學校環境因素與資訊科技融入教學實施成效之相關研究，國立中央大學學習與教學研究所未出版之碩士論文。?文益(2003)，資訊科技融入教學之我?，師?，174，10-11。沈中偉(1998)，即時群播遠距教學之教學設計與教學策略探討，遠距教學，7，13-19。沈敏慧(2007)，國小教師資訊融入教學之教師自我效能感、學校行政支援與創新接受度相關研究，國立台東大學教育研究所課程與教學碩士班未出版之碩士論文。周文賢(2001)，多變量統計分析-SAS/STAT之應用，台北:智勝。周永記(2003)，教師教學使用資訊科技意圖之研究，國立高雄師範大學資訊教育研究所未出版之碩士論文。周家慧(2006)，以DeLone & McLean模式探討入口網站成功之影響因素，資訊管?展望，8(1)，109-132。周鳳珠(2009)，金門縣國民小學教師知覺學校行政支援與新移民子女生活適應之相關研究，國立臺北教育大學教育行政碩士在職進修專班未出版之碩士論文。林育毅(2004)，高高屏地區國小特教教師運用電腦融入教學意圖與困擾因素調查研究，國立台東大學教育研究所未出版之碩士論文。 林俊男、劉永章、阮金聲(2011)，民眾持續使用醫師部落格意圖之影響因素，北市醫學雜誌，8(1)，23-36。林娟娟、林進興(2006)，自由軟體使用意願之研究，2006電子商務與數位生活研討會，台北。林意晨(2008)，桃園縣國民中學數學教師使用資訊融入教學之現況研究，中原大學教育研究所科學教育組未出版之碩士論文。邱成欽、林弘昌(2010)，影響企業員工使用數位學習意願之相關因素探討，生活科技教育月刊，43(5)，9-26。邱明芳(2003)，國民小學實施融合教育學校行政支援之研究，國立彰化師範大學特殊教育學系未出版之碩士論文。邱郁文、林益民、施東河(2007)，系統特性、任務特性與電腦自我效能對個人線上學習行為傾向影響，電子商務學報，9(2)，235-266。邱真(2005)，知識管理系統持續使用關鍵因素之研究，國立高雄第一科技大學資訊管理研究所未出版之碩士論文。侯坤成(2010)，國中實施資訊科技融入教學意圖之探討--以臺南市國中教師推動電子互動白板教學為例，立德大學科技管理研究所未出版之碩士論文。施吉安(2001)，資訊融入國民小學自然科教學可?性之研究—以桃園縣新?國小為?，國?臺灣師範大學未出版之碩士論文。洪浚逢(2011)，以任務-科技適配理論評估醫院教學/會議資訊系統之使用績效，澄清醫護管理雜誌，7(4)，32-43。孫志麟(1999)，教師自我效能:有效教學的關鍵，教育研究資訊，7(6)，170-187。徐新逸、王培卉、賴淑齡、李端華、劉仕偉(2003)，國小社會學習領域教師實施資訊融入教學之現況與需求，第11屆國際電腦輔助教學研討會暨第16屆中華民國電腦輔助教學研討會，台灣:台北。高睿璟(2002)，影響非同步網路教學系統持續使用意圖因素之研究，淡江大學資訊管理研究所未出版之碩士論文。張育瑋、許秉瑜、蕭文龍，鄭雲珊(2011)，資訊系統的認知價值對使用者滿意度之影響:以期望確認模式為基礎，科技管理學刊，16(2)，1-24。張茂源(2002)，九年一貫課程試辦國小教師工作壓力訪談研究，國立嘉義大學教育學院國民教育研究所未出版之碩士論文。張凈怡、張佩芬、林信榕、張琬琳(2008)，教師使用資訊科技融入教學之困境與因應之道，第十二屆全球華人電腦教育應用大會(GCCCE2008)，美國:密西根州立大學。張基成、王秋錳(2008)，台?市高職教師資訊科技融入教學創新?為及其預測指標之分析，教學科技與媒體，86，20-42。張淑文(2011)，澎湖縣幼兒園教師資訊科技融入教學實施現況及影響因素調查研究，國立臺南大學教育學系課程與教學澎湖碩士班未出版之碩士論文。張紹勳(2001)，研究方法，台北:滄海。張賀城(2008)，嘉義縣國小教師資訊素養與行政支援對教師應用資訊融入教學方式之探討，國立台東大學教育研究所未出版之碩士論文。張瓊穗、翁婉慈(2006)，台?縣（市）國小教師資訊科技融入教學知能現況調查研究，國?台?教育大學學報，19(2)，129-162。教育部(2000)，國民中小學九年一貫課程暫行綱要，台?:教育部。教育部(2001)，中小學資訊教育總?圖。取自:http://www.edu.tw/EDU_WEB/EDU_MGT/MOECC/EDU7892001/information/itpo/itprojects/itmasterplan.htm教育部(2008)，中小學資訊教育白皮書，台?:教育部。曹文瑜、林政坤、楊惠貞(2009)，影響網路直播持續收看意圖相關因素之研究，企業管理學報，81，107-129。許金發(2008)，國小行政支援、教師電腦自我效能對資訊融入教學效能之影響，大葉大學教育專業發展研究所未出版之碩士論文。許玲瑛(2004)，技職校院教師應用資訊科技教學態度之探討。樹德科技大學資訊管理研究所未出版之碩士論文。許銘津、黃義峰(2005)，國小教師應用TINS融入主題探究教學引導不同學業成就的學生學習之研究，發表於第二十一屆科學教育學術研討會，彰化，台灣。許麗玲、何晉滄、黃文楷(2008)，探討Blog使用者持續採用行為之研究-以期望確認理論為基礎，資訊管理學報，15(4)，1-26。郭吉模(2004)，現?資訊融入教學推展的問題及因應策?，學校?政雙月刊，28，86-95。陳木金、邱馨儀(2007)，推動優質學校行政管理保障教育品質，學校行政，50，87-102。陳冠杏(1998)，台北市國小普通班自閉症學生學校適應與學校支持系統狀況調查，國立台灣師範大學特研所未出版之碩士論文。陳彥君(2010)，IWB融入數學領域對國小中年級學生學習動機與成效之研究，臺南大學教育學系未出版之碩士論文。陳禹辰、尚榮安、劉蔚廷(2010)，以TAM與TTF探討組織員工的e化科技接受意圖-組織疏離員工的組織學習效應，資訊管理學報，17(4)，139-169。陳清溪(2000)，啟智班教師教學支援需求與教學自我效能之研究，國?彰化師範大學特殊教育學系未出版之博士論文。陳惠邦(2006)，互動白板導入教室教學的現況與思考，發表於全球華人資訊教育創新論壇，台北:台北市政府。陳順宇(2000)，多變量分析，台北:華泰書局。陳瑞鴻(2006)，國小教師運用資訊融入教學意圖之調查研究-以彰化縣為例，大葉大學資訊管理學系未出版之碩士論文。陳碧君(2003)，開啟影音新＂視＂界，幼教資訊，154，19-25。陳韻雯(2009)，桃園縣國民小學教師使用互動式電子白板之調查研

究，國立臺北教育大學國民教育學系教育事業創新經營碩專班未出版之碩士論文。粟四維、莊友豪(2010)，虛擬社群成員知識分享意圖探討，資訊管理學報，17(3)，181-204.黃天佑、吳璧安、?婉儀、?佩穎(2006)，城鄉國小教師資訊科技融入教學差?分析，資訊科學應用期刊，2(2)，99-114.黃秀園，鄭元琨(2010)，資訊科技融入教學對國小四年級社會領域學習成效之研究---以英特爾創新思考教育計畫為例，2010電腦與網路科技在教育上的應用研討會，台灣新竹教育大學。黃俊凱(2006)，Blogosphere之電子化教學歷程檔案成效研究--以彰化縣國中小為例，大葉大學資訊管理學系未出版之碩士論文。黃振球(1990)，學校管理與績效，台北:師大書苑。楊淑卿、周倩(1998)，中小學教師與網際網路教學推行之研究，遠距教學，10，41-46。楊麗香(2010)，國民小學推動資訊科技融入教學之關鍵成功因素，國立彰化師範大學資訊管理學系所未出版之碩士論文。溫嘉榮、吳明隆(2000)，新時代資訊教育的理論與實務應用，台北市:松崗。葉龍海(2009)，以期望符合與任務科技配適探討某公部門人員持續使用內部資訊系統之意圖，靜宜大學資訊管理學系未出版之碩士論文。詹玉玫(2011)，學校行政支援與新住民子女生活適應之研究—以彰化縣國民小學為例，大葉大學工學院未出版之碩士論文。趙曉美、廖文斌、潘淑芬(2006)，國小實施客家語教學學校支持系統之研究:以臺北縣市為例，教育研究與發展期刊，2(2)，125-152。劉文良、王禎瑩(2009)，個人持續使用Web-ATM之整合模式研究，環球科技人文學刊，10，17-28。劉宏模(2007)，影響教師採用資訊科技融入教學之階層線性模式分析，元智大學資訊社會學研究所未出版之碩士論文。劉敉君、黃興進、廖則竣(2010)，決策支援系統使用績效之實證研究:結合任務-科技適配與資訊系統成功模式，電子商務學報，12(3)，407-430。潘英豪(2011)，科技教室導入雲端網路教學方法之研議，生活科技教育月刊，44(3)，80-94。潘淑琦(2006)，資訊融入自然與生活科技領域之行動研究，生活科技教育月刊，39(7)，87-107。潘朝明(2007)，以科技接受模式探討Moodle應用於高中音樂課程教學之學習滿意度及學習成效之研究，2007 e化社會的課程與專案式學習國際學術研討會，台灣國立高雄師範大學。蔡俊男(2000)，高雄市國小教師運用資訊科設施教學意圖之研究，國立高雄師範大學工業科技教育學系未出版之碩士論文。蔡馥嬪(2004)，國民小學推動資訊科技融入教學行政支援因素之探討—以台南縣市為例，國立臺南師範學院國民教育研究所未出版之碩士論文。鄧偉志(2007)，以任務/科技配適構面擴充期望確認理論-以ERP系統為例，國立中央大學企業管理研究所未出版之碩士論文。蕭文龍、郭庭伊(2010)，部落客持續使用部落格之研究:以整合期望確認、科技接受模式和個人因素觀點探討，Journal of e-Business，12(2)，221-250。蕭旭佐(2008)，探討不同地區運用既有資訊設備於實際教學之擴散性研究，大葉大學資訊管理學系未出版之碩士論文。蕭美杏(2004)，國小自然與生活科技領域教師之資訊融入教學態度、教學信念、關注階層與使用層級研究，國立中山大學教育研究所未出版之碩士論文。蕭英?(2009)，中小學資訊科技融入教學研究趨勢與發展—以臺灣地區2001-2009?學位?文為?，國?台南大學教育經營與管?研究所未出版之博士?文。賴怡卉(2003)，資訊等於知?嗎?談資訊融入教學的?思，師?，174，8-9。賴阿福、?皎汝、江信?(2005)，影響台?市國小自然與生活科技?域教師資訊融入教學頻?暨相關因素之探討，科學教育研究與發展，154-184。謝文全(2000)，學校行政，台北:五南。顏永進、何榮桂(2001)，資訊科技融入學習領域設計策略初探，台灣師範大學地方教育輔導叢書，26，197-512。蘇昭昇(2003)，影響國小普通班級任教師對班上身心障礙學生教育態度因素之研究，彰化師範大學特殊教育研究所未出版之碩士論文。二、英文部份Amoako-Gyampah, K. (2007). Perceived usefulness, user involvement and behavioral intention: an empirical study of ERP implementation. Computers in Human Behavior, 23(3), 1232-1248.Anderson, E. W., and Sullivan, M. W. (1993). The antecedents and consequences of customer satisfaction for firms. Marketing Science, 12(2), 125-143.Anderson, E. W., Fornell, C., and Lehmann, D. R. (1994). Customer satisfaction, market share, and profitability: Finding from Sweden. Journal of Marketing, 58 (3), 53-66.Arning, K., and Ziefle, M. (2007). Understanding differences in PDA acceptance and performance. Computers in Human Behavior, 23(6), 89-93.Bagozzi, R. P. (1982). A field investigation of causal relations among cognitions, affect, intentions and behavior. Journal of Marketing Research, 19(11), 562-584.Bagozzi, R. P., and Yi, Y. (1988). On the evaluation of structural equation mdels. Academy of Marking Science, 16, 76-94.Barowy, W., and Jouper, C. (2004). The complex of school change: personal and systemic co-development. Mind, Culture, and Activity, 11(1), 9-24.Bearden, William, O , and Teel, J. E. (1983). Selected determinants of consumer satisfaction and complaint reports. Journal of Marketing Research, 20, 21-28.Bhattacherjee, A. (2001a). Understanding information systems continuance: An expectation confirmation mode. MIS Quarterly, 25(3), 351-370.Bhattacherjee, A. (2001b). An empirical analysis of the antecedents of electronic commerce service continuance. Decision Support Systems, 32(2), 201-214.Boethel, M., Dimock, K. V., and Hatch, L. (1998). Putting technology into the classroom:A guide for rural decision makers.Bollen, K. A. (1989). Structural Equations with Latent Variables, New York:John Wiley & Sons.Bruce (1998). User satisfaction with information seeking on the Internet. Journal of the American Society for Information Science, 49(6), 541-556.Cardozo, R. M. (1965). An experimental study of consumer effort, expectation and satisfaction. Journal of Marketing Research, 2(8), 244-249.Chang, H. H. (2010). Task-technology fit and user acceptance of on-line auction. International Journal of Human-Computer Studies, 68Cher, P. L., and Myint, S. K. (2006). Managing teachers ’ barriers to ICT integration in Singapore schools. Journal. of Technology and Teacher Education, 14(1), 97-125.Chiu, C. M., Hsu, M. H., Sun, S. Y., Lin, T. C., and Sun, P. C. (2005). Usability, quality, value and E-Learning continuance decisions. Computers and Education, 45(4), 399-416.Churchill, G. A., and Surprenant, C. (1982). An investigation into the determinants of customer satisfaction. Journal of Marketing Research, 19, 491-504.Cyber, R. M., and March, J. (1963). A behavior theory of the firm. London: Blackwell.Dabolkar, P. A., Shepard, C. D., and Thorpe, D. I. (2000). A comprehensive framework for service quality: An investigation of critical conceptual and measurement issues through a longitudinal study. Journal of Retailing, 76(2), 139-173.Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 14, 319-340.Davis, K. S., and Falba, C. J. (2002). Integrating technology in elementary preservice teacher education: Orchestrating scientific inquiry in meaningful ways. Journal of science teacher education, 13(4), 303-329.Devellis, R. F. (1991). Scale Development: Theory and Applications. Newbury Park, CA: Sage.Doll, W. J., and Torkzadeh, G. (1991). The measurement of end-user computing satisfaction: theoretical and methodological issues. MIS Quarterly, 15(1), 5-12.Dwyer, D. C., Ringstaff, C. and Sandholtzl, J. H. (1991). Changes in teachers ’ beliefs and practices in technology-rich classrooms. Educational Leadership, 48(8), 45-52.Ely, D. P. (1999). Conditions that facilitate the implementation of

educational technology innovations. Educational Technology, 39, 23-27.Festinger, L, A. (1957). A Theory of Cognitive Dissonance. Stanford CA: Stanford University Press.Fishbein, M., and Ajzen, I. (1975). Belief, attitude, intentions and behavior: An introduction to theory and research. Boston: Addison-Wesley.Fornell, C. R., and Larcker, F. F. (1981). Structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18, 39-51.Gay, L. R. (1992). Educational Research:Competencies for Analysis and Pplication, N Y: Macmillan.Gebauer, J. and Shaw, M. J. (2004). Success factors and impacts of mobile business applications: results from a mobile e-procurement study. International Journal of Electronic Commerce, 8(3), 19-41.Gebauer, J., and Shaw, M. J. (2004). Success factors and impacts of mobile business applications: Results from A Mobile E-procurement Study. International Journal of Electronic Commerce, 8(3), 19-41.Goodhue, D. L. (1998). Development and measurement validity of a Task-technology fit instrument for user evaluations of information systems. Decision Sciences, 29(1), 105-138.Goodhue, D. L., and Thompson, R. L. (1995). Task-technology fit and individual performance. MIS quarterly, 19(2), 213-236.Gosmire, D., and Grady, M. L. (2007). A bumpy road: Principal as technology leader. Principal Leadership, 6, 16-21.Granger, C. A., Morbey, M. L., Lotherington, H., Owston, L. D. and Wideman, H. H. (2002). Factors contributing to teachers ’ successful implementation of IT. Journal of Computer Assisted Learning, 18, 480-488.Granger, C. A., Morbey, M. L., Lotherington, H., Owston, L. D., and Wideman, H. H. (2002). Factors contributing to teachers ’ successful implementation of IT. Journal of Computer Assisted Learning,18, 480-488.Grant, R. M. (1991). The resource-based theory of competitive advantage: Implications for strategy formulation. California Management Review, Spring, 114-135.Guieford, J. P. (1965). Fundamental Statistics in Psychology and Education, McGraw-Hill, New York.Ha, I., Yoon, Y., and Choi, M. (2007). Determinants of adoption of mobile games under mobile broadband wireless access environment. Information & Management, 44(3), 276-286.Hadley, M., and Sheingold, K. (1993). Commonalities and distinctive patters in teachers ’ integration of computers. American Journal of Education, 101, 261-315.Hair, J. F., Anderson, R. E., Tatham, R. L., and Black, W. C. (2006). Multivariate Data Analysis,Upper Saddle River, N.J.: Prentice Hall.Hartwick, J., and Barki, H. (1994). Explaining the role of user participation in information system use. Management Science, 40(4), 440-465.Hayashi, A., Chen, C., Ryan, T., and Wu, J. (2004). The role of social presence and moderating role of computer self efficacy in predicting the continuance usage of e-learning systems. Journal of Information Systems Education, 15(2), 139-154.Hew, K. F., and Brush, T. (2007). Integrating technology into K-12 teaching and learning: Current knowledge gaps and recommendations for future research. Education Tech Research, 55, 223-252.Hoffman, R. P. (1996). Levels of technology use and instructional innovation. Unpublished Doctoral Dissertation, San Diego State University.Hong, S. J., Thong, J. Y. L., and Tam, K. Y. (2006). Understanding continued information technology usage behavior: A comparison of three models in the context of mobile internet. Decision Support Systems, 42, 1819-1834.Hope, W. C. (1996). Factors facilitating teachers ’ use of computer technology. Clearing House, 70(2), 106-107.Howard, J. A., and Sheth, J. N. (1969). The Theory of Buyer Behavior. NY: John Wiley and Sons.Hsu, C. L., and Lu, H. P. (2004). Why do people play online games? An extended TAM with social influences and flow experience. Information & Management, 41(7), 853-868.Huang, Echo, Hsu, M-H., Yen, Y. R. (2008). Understanding participant loyalty intentions in virtual communities. WSEAS Transactions on Information Science and Applications, 4(5), 497-511.Hung, M. C., Hwang ,H. G., and Hsieh, T. C. (2007). An exploratory study on the continuance of mobile commerce: an extended expectation-confirmation model of information system use. International Journal of Mobile Communications, 5(4), 409-422.Hung, S. Y., Ku, C. Y., and Chang, C. M. (2003). Critical factors of WAP services adoption: An empirical study. Electronic Commerce Research and Applications, 2(1), 42-60.Hunter, B. M. (1989). Teacher burnout and social support:an administrative perceptive. Unpublished doctoral dissertation, University of Houston.Jaber, W. E., and Moore, D. M. (1999). A survey of factors which influence teachers' use of computer-based technology. International Journal of Instructional Media, 26(3), 253-266.Joreskog, K. G., and Sorbom, D. (1996). LISREL 8: User's Reference Guide. Chicago: Scientific Software International.Junglas, I. A., Abraham, C., and Watson, R. T. (2008). Task-technology fit for mobile and locatable information systems. Decisions Support Systems, 45(4), 51-61.Kaiser, H. F. (1974). An index of factorial simplicity. Psychometrika, 39 (1), 31-36.Karimi, J., Somers, T. M., and Gupta, Y. P. (2004). Impact of environmental uncertainty and task characteristics on user satisfaction with data. Information Systems Research, 15(2), 175 – 193.Klaus, T., Gyires, T., and Wen, J. H. (2003). The use of Web-based information systems for non-work activities: An empirical study. Human System Management, 22, 105-114.Kraijcik, J., Blumenfeld, P. C., Marx, R. W., Fredricks, J., and Soloway, E. (1998). Inquiry in project-based science classrooms: Initial attempts by middle school students. The Journal of the Learning Sciences, 7(3and4), 313-350.Ladhari, R. (2007). The effect of consumption emotions on satisfaction and word-of-mouth communications. Psychology and Marketing, 24(12), 1085-1108.LaTour, Stephen A., and Nancy C. Peat. (1979). Conceptual and methodological issues in satisfaction research. Advances in Consumer Research, 6, 431-437.Lawson, and T Comber, C. (1999). Super highways technology: Personnel factors leading to successful integration of information and communications technology in schools and colleges. Journal of Information Technology for Teacher Education, 8(1), 41-53.Lee, C. C., Cheng, H. K., and Cheng, H. H. (2007). An empirical study of mobile commerce in insurance industry: Task – technology fit and individual differences. Decision Support Systems, 43, 95 – 110.Lee, K. W. (2000). English teachers' barriers to the use of computer assisted language learning. The Internet TESL Journal, 6(12).Lee, M. C. (2010). Explaining and predicting users ’ continuance intention toward E-learning: An extension of the expectation confirmation model. Journal of Computers and Education , 54, 506 – 516.Leggett, W. P. and Persichitte, K. A. (1998). Blood, sweat, and TEARS: 50 years of technology implementation obstacles. TechTreads, 43(3), 33-39.Liao, C., Chen, J. L., and Yen, D. C. (2007). Theory of planning behavior (TPB) and customer satisfaction in the continued use of e-service: An integrated model. Computers in Human Behavior, 23(6), 2804-2822.Liao, C. H., Tsou, C. W. and Huang, M. F. (2007). Factors Influencing the Usage of 3G Mobile Services in Taiwan. Online Information Review, 31(6). 759-774.Lin, C. S., Wu, S., and Tsai, R. J. (2005). Integrating Perceived Playful-ness into Expectation-Confirmation Model for Web Portal Context. Information and

Management, 42(5), 683-693.Lin, T., and Huang, C. (2008). Understanding knowledge management system usage antecedents: An integration of social cognitive theory and task technology fit. Information and Management, 45(6), 410-417.Locke (1976). The Nature and Causes of Job Satisfaction. Handbook of Industrial and Organizational Psychology. Chicago: Randenally, 1297-1349.Lucas, H. C. (1981). The analysis, design, and implementation of information systems. New York: McGraw-Hill.MacNeil, A. J., and Delafield, D. P. (1998). Principal leadership for successful school technology implementation.Marios, K. (2002). Applying the technology acceptance model and flow theory to online consumer behavior. Information System Research, 13(2), 205-223.Mathieson, K., and Keil, M. (1998). Beyond the interface: Ease of use and Task/technology fit. Information & Management, 34(4), 221-230.Mathieson, K., and Keil, M. (1998). Beyond the interface: Perceived ease of use as a function of task/technology fit. Information and management, 34(4), 221-230.McGill, T. J., and Klobas, J. E. (2009). A task-technology fit view of learning management system impact. Computers and Education, 52, 496-508.McGill, T., Klobas, J., and Renzi, S. (2011). LMS use and instructor performance: The role of Task-technology fit. International Journal on E-Learning, 10(1), 43-62. Chesapeake.McKinney, V., Yoon, K., Zahedi, F. M. (2002), The measurement of web-customer satisfaction: An expectation and disconfirmation approach. Information System Research, 13(3), 296-315.Megdadi, A. A., and Nusair, T. T. (2011). Shopping consumer attitudes toward Mobile marketing: A case study among jordanian user's. International Journal of Marketing Studies, 3(2) ,32-52.Montfort, K. V., Masurel, E., and Rijn, I. V. (2000). Service satisfaction:An empirical analysis of customer satisfaction in financial services. The Service Industries Journal, 20(3), 80-94.Oliver(1980). A cognitive model of the antecedents and consequences of satisfaction decisions. Journal of Marketing Research, 17, 460-469.Oliver, R. L. (1993). Cognitive, affective, and attribute bases of the satisfaction response. Journal of Consumer Research, 418-430.Oliver, R. L., and Linda, G. (1981). Effect of satisfaction and its antecedents on consumer preference and intention. Advance in Consumer Research, 8, 88-93.Oliver, Richard L., and William O. Bearden (1985). Disconfirmation processes and consumer evaluations in product usage. Journal of Business Research, 13, 495-507.Oliver, Richard, L., and Desarbo, W. S. (1988). Respones determinants in satisfaction judgment. Journal of Consumer Research, 14, 495-507.Olson, J. C., and Dover, P. (1976). Effects of expectation, product performance, and disconfirmation on belief elements of cognitive structures. Advances in Consumer Research: Association for Consumer Research.Olson, M. H., and Ives, B. (1982). Chargeback systems and user involvement in systems: An empirical investigation. MIS Quarterly, 6(2), 47-60.Pagani, M. (2006). Determinants of adoption of high speed data services in the business market: Evidence for a combined technology acceptance model with task technology fit model. Information and Management, 43(7), 847-860.Patterson, P. G., Johnson, L. W., and Spreng, R. A. (1997). Modeling the Determinants of Customer Satisfaction for Business-to-Business Professional Services. Journal of the Academy of Marketing Science, 25(1), 4-17.Pelgrum, W. J. (2001). Obstacles to the integration of ICT in education: Results from a world wide educational assessment. Computers and Education, 37, 163-178.Rachael, I. K. F. (2005). An Exploratory Study on how Weblog Technologies fit Virtual Community Members ’ Social Needs. Proceedings of the Eleventh Americas Conference on Information Systems, Omaha, NE, USA.Rai, A., Lang, S. S., and Welker, R .B. (2002). Assessing the validity of IS success models: An empirical test and theoretical analysis. Information Systems Research, 13(1), 50-69.Reiser, L. J. (2002). Professional development and other factors that contribute to the ability to integrate technology into curriculum. Journal of educational technology systems, 30(4), 437-460.Rice, R. E., August E. G., and Joseph S. (1990). Individual and Network influences on the adoption and perceived outcomes of electronic messaging. Social Networks, 12, 27-55.Roca, J. C., Chiu, C. M. and Mart?nez, F. J.(2006). Understanding e-learning continuance intention: An extension of the Technology Acceptance Model, International Journal of Human-Computer Studies, 64(8), 683-696.Rogers, Everett M. (1983). Diffusion of Innovation. New York: Free Press.Rushinek, A., and Rushinek, S. F. (1986). What Makes Users Happy ? Communications of the ACM, 29(7), 594-598.Sandholtz, J. H., Ringstaff, C. and Dwyer , D. C. (1997). Teaching with technology: creating student-centered classrooms. New York: Teachers College Press.Sandholtz, J. M., Ringstaff, C. and Dwyer, D. C.(1997). Teaching and Technology: Creating Student-Centered Classrooms, New York: Teacher College, Columbia University.Santos, J., and Boote, J. (2003). A theoretical exploration and model of consumer expectations, post-purchase affective states and affective behavior. Journal of Consumer Behavior, 3(2), 142-156.Schauble, L., Glaser, R., Duschl, R. A., Schulze, S., and John, J. (1995). Students ’ understanding of the objectives and procedures of experimentation in the science classroom. The Journal of the Learning Sciences, 4, 131-166.Schifter, C. (2004). Faculty participation in distance education programs: Practices and plans. In D. Monolescu, C. Schifer and L. Greenwood, The distance education evolution: Issues and case studies. Hershey, PA: Information Science Publishing.Sheingold, K., and Hadley, M. (1990). Accomplished teachers: integrating computers into classroom practice. New York: Centre for Technology in education.Shiau, W. L., Huang, L. C., and Shih C. H. (2011). Understanding continuance intention of Blog users: A perspective of flow and Expectation Confirmation Theory. Journal of Convergence Information Technology, 6(4). 306-317.Song, H. D., and Suh, W. S. (2005). Simulating the impact of motivation support factors on actual adoption of web-based instruction. In P. Kommers and G. Richards (Eds.). Proceedings of ED-MEDIA 2005 (pp.3616-3620), VA: AACE.Spreng, R. A., and Olshavsky, Richard W. (1993). A desires congruency model of consumer satisfaction. Journal of the Academy of Marketing Science, 21(3), 196-177.Spreng, R. A., MacKenzie, S. B., and Olshavsky, R.W. (1996). A re-examination of the determinants of consumer satisfaction. Journal of Marketing, 60, 15-32.Stager, G. S. (1995). Laptop schools: lead the way in professional development. Educational Leadership, 53(2), 78-81.Swan, J. E., and Trawick, F (1980). Inferred and perceived disconfirmation in consumer satisfaction. Marketing in the 80's: Proceedings of the AMA Educators' Conference, 97-101.Szajna, B. and Scamell, R. W. (1993). The effect of information system user expectations on their performance and perceptions. MIS Quarterly, 18(4), 493-516.Thong, Y. L., Hong, S. J. and Tam, Y. K. (2006). The effects of post-adoption beliefs on the Expectation-Confirmation Model for information technology continuance. International Journal of Human-Computer Studies, 64, 799-810.Tondeur, J., van Braak, J., and Valcke, M. (2007). Curricula and the use of ICT in

education: Two worlds apart? British Journal of Educational Technology, 38(6), 962-976.Tse, D. K., and Wilton, P. C. (1988). Models of consumer satisfaction formation: An Extension, Journal of Marketing Research, 25(2), 204-212.Venkatesh, V., and Morris, M. G. (2000). Why don ' t men ever stop to ask for directions? Gender, social influence, and their role in technology acceptance and usage behavior. MIS Quarterly, 24(1), 115-139.Vessey, I., and Galletta, D. (1991). Cognitive fit: An empirical study of information acquisition. Information Systems Research, 2(1), 63-86.Vessey, Iris (1991). Cognitive fit: a theory-based analysis of the graphs versus tables literature. Decision Sciences, 22(2), 219-240.Vijayasarathy, L. R. (2004). Predicting consumer intentions to use on-line shopping: the case for an augmented technology acceptance model. Information and Management, 41(6), 747-762.Westbrook, R. A. (1987). Product/Consumption-based affective responses and post-purchase processes. Journal of Marketing Research, 124, 258-270.Westbrook, R. A., and Reilly, M. D. (1983). Value-percept disparity: An alternative to the disconfirmation of expectations theory of consumer satisfaction. Advances in Consumer Research, 10(1), 256-261.Wetzel, D. R. (2001). A model for pedagogical and curricula transformation with technology. Journal of Computer in Teacher Education, 18(2), 43-49.Williams, L. J. (1989). Affective and non-affective components of job satisfaction and organizational commitment as determinants as organizational citizenship and in-role behaviors. Unpublished doctoral dissertation, Bloomington, IN: Indiana University.Wixom, B. H., and Watson, H. J. (2001). An empirical investigation of the factors affecting data warehousing success. MIS Quarterly, 25(1), 17-41.Yi, Y. (1990). A critical review of customer satisfaction. Review of Marketing, 4, 68-123.