Using Technology Acceptance Model to Explore E-Learning Based Learning Performance and Satisfaction

E-mail: 9607614@ mail.dyu.edu.tw

ABSTRACT

With the booming development of the Internet and information technology, the Internet has broken the limitation of time and space. In other words, the application of network has changed the living style of human beings. Even the direction of education is going toward digitization and internationalization. As can be seen, e-learning has brought a great impact on traditional education. To break through the limit of traditional education, web-based learning and e-learning has been the inevitable tendency, which is also the critical research task of current educational and academic authorities. The study aims to apply Technology Acceptance Model (TAM) to explore the rela-tion among learners' learning attitudes, satisfaction and performance in the e-learning environment by analyzing factors such as learners' acceptance, cognition, learning atti-tudes, learning satisfaction and learning performance. The result of the study would be helpful in building a learner-oriented e-learning system. Data of the application of e-learning system to learners in learning different subjects are analyzed by Scheffe's post comparative analysis, One-way ANOVA and path analysis. The result shows that the external variances of e-learning system are the quality of the system, the quality of information, and features of the learning materials. The conclusions of the study are as follows: (1)The quality of information and features of the learning materials of e-learning system should be highly concerned. (2)The design of the e-learning system should be based on learners in learning dif-ferent subjects. (3)The evaluation mode of the satisfaction and performance in e-learning. (4)The most efficient learning pattern was explored. (5)The exploration of satisfaction in e-learning based on items of learning attitudes. (6)The positively-correlated effect between satisfaction and performance in e-learning.

Keywords : e-learning ; Technology Acceptance Model ; Learning Attitude ; Learning Satisfaction ; Learning Performance

Table of Contents

REFERENCES

(1990)

(1999) -

(1999) —

(2001)

(2002) SPSS : (2004)

— (1997)

10 pp.21-80 (2006) 15 :

(1995) 2(2) 37-64 (1997)

INTERNET 2 423-439 (1998)

7 20-29 (1998) :

(2001)

(2006) Amos -Graphics & Basic : (2006)

-

(2000) (2003)

(2002) :

(1999) ---

(1992) 59-78 (1999)

— (1999)

4 61-76 (2000)

(2000) - 2 123-134

(2005) SPSS : : (2005) :

: (1999) (1989)

(2006) Blog —

42-51 (1997) -

2 (1998) 64 2-13 (2003)

(2004) SOLO

(1994) (TANet)

8311:3-13 (2002)

(2003) (WLAN) (TAM)

(2002)

? (2005) JOURNAL OF CAGST 2005 2005

(2006) Blog

(2003) Web-Title -TAM 1 55-72

(2002)

(1997) : (1995) 1995 5 pp.52-65

(2003) : 1 1-23

(2004) http://www.find.org.tw/0105/news/0105_news_disp.asp?news_id=2969 (2004)

(2000) : 16

75-84 (2002)

(2004) (2004)

(2004)

Kearsley (1999) - :

(2004) (2006)

(2000) Dick Carey

(2004)

Ajzen, I. & M. Fishbein. (1980). Understanding Attitudes and Pre-dicting Social Behavior. Prentice-Hall, Englewood Cliffs, NJ. Agarwal, R. & Prasad, J. (1998). The antecedents and consequents of user perceptions in information technology adoption, Decision Support Systems, 22(1), 15-29. Arbaugh, J. B. (2000). Virtual Classroom Characteristics and Student Satisfaction with Internet-Based MBA. Journal of Management Education. 24, 32-54. Bailey, J.E., Pearson, S.W., (1983). Development of a tool for meas-uring and analyzing computer user satisfaction. Management Science, 29 (5), 530-545. Bostrom, R.P., Oliman L., & Sein M. K. (1990). The Importance of Learning Style in End-User Training. MIS Quarterly, 14(1), 101- 173. Barbara L.Martin. (1994). Using Distance Education to Teach Instruc-tional Design to Preservice. Education Technology, March. 49-55. Barua, A., Chellapa, R., and Whinston, A. B. (1995). Collaboratory in Cyberspace: Theoretical Foundation and an Implementation. Journal of Organizational Computing. 5, 417-442. Bergeron, F., Rivard, S., and Serre, L. D. (1990). Investigating the Support Role of the Information Center. MIS Quarterly, 14, 247-260. Burns, J., Clift, J., and Duncan, J. (1990), Understanding of Under-standing: Implications for Learning and Teaching, British Jour-nal of Educational Psychology, 61, 276-289.

Bhattacherjee, A., (2001a). Understanding information systems con-tinuance: an expectation-confirmation mode. MIS Quarterly, 25 (3), 351-370. Chris Hughes, and Lindsay Hewson. (1998). Online Interactions: De-veloping a Neglected Aspect of the Virtual Classroom, Educa-tion Technology, July-August, 48-55. Casarotti, M., Filipponi, L., Pieti, L. & Sartori, R.(2002), Educational Interaction in Distance Learning: Analysis of a one-way video and two-way audio system, PsychNology Journal, 1(1), 28-38. Cyber, R. M. & March, J. (1963). A behavior theory of the firm. Lon-don:Blackwell. Daft, R. L., and Lengel, IL, H. (1986). Organizational information re-quirements: Media richness and structural design. Management Science. 32, 554 -571. Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. MIS Quarterly, 13(3), 319-340. Davis, F.D., Bagozzi, R.P. & Warshaw, P.R., (1989). User Acceptance Of Computer Technology: A Comparison Of Two Theoretical Models. Management Science, 35(8), 982-1003. Delone, W.H., McLean, E.R., (1992). Information systems success. The quest for the dependent variable. Information Systems Re-search, 3, 60-95. Dabholkar, P. A. (1996). Consumer Evaluations of New Technol-ogy-Based Self-Service Options: An Investigation of Alternative Models of Service Quality. International Journal of Research in Marketing, 13, 29-51. Donna Dufner, Ojoung kwon, and Rassule Hadidi. (1998). Develop-ment and Implementation of a Web-enabled Cyber Collabora-tory for Asynchronous Teams (Web-CCAT), 1998 IEEE proc.31st Annual Hawaii International Conference on System Sciences, 330-339. Fishbein, M., Ajzen, I., (1975). Belief, Attitude, Intention and Behav-ior: An Introduction to Theory and Research. Addison-Wesley, Reading, MA. Good, T.L., & Brophy, J.E. (1984). Looking in classrooms (3rd ed.). New York, NY: Harper & Row. Goodhue, D. L. & Thompson, R. L. (1995). Task-Technology Fit and Individual Performance. MIS Quarterly, 19(2), 213-236. Holmberg, B. (1983). Guided didactic conversation in distance educa-tion, In Sewart, D. et al. (eds.): Distance Education. Interna-tional Perspectives. London: Croom Helm. Hiltz, Starr Roxanne(1994). The Virtual Classroom: Learning Without Limits via Computer Networks, Ablex Publishing Corporation 355 Chestnut St.Norwood, NJ. Hubona, G. S., and Geitz, S. (1997). External Variables, Beliefs, Atti-tudes and Information, Technology Usage Behavior. Proceeding of the Thirtieth Hwaii International Conference, 3, 21-28. Ives, B., Olson, M. H., & Baroudi, J. J. (1983). The measurement user information satisfaction. Communications of the ACM. 26, 785-793. Igbaria, M., Iivari, J., and Maragahh, H. (1995). Why do individuals use computer technology? A Finnish case study, Information and Management, 29, 227-238. Johnson, G. R., Eison, J. A., Abbott, R., Meiss, G. T., Moran, K., Gor-gan, J. A., Pasternack, T. L., Zaremba, E. & McKeachie, W. J. (1991). Teaching tips for users of the motivated strategies for learning questionnaire (MSLQ) , National Center for Research to Improve Postsecondary Teaching and Learning, University of Michigan. Justyna, R., and Gregory, R. M. (2001). A Framework for Effective User Interface Design for Web-Based Electronic Commerce Applications, Proceedings of Information Science, 462-470. Karen Swisher. (1994). American Indian Learning Sytles Survey: An Assessment of Teachers Knowledge, The Journal of Educa-tional Issues of Language Minority Students, 13, 59-77. Kettinger, W. J. and Lee, C. C. (1994). Perceived Service Quality and User Satisfaction with the Information Service Function. Deci-sion Science, 25(5), 737-766. Karen E.Goeller. (1998). Web-based collaborative learning: a perspec-tive on the future, Computer Networks and ISDN systems 30, 634-635. Kang, S. (1998). Information technology acceptance:evolving with the changes in the nerwork environment, Proceedings of the 31 Hawaii International Conference on System Sciences, 413-423. Loyd, B. C. & Gressard, C. (1984). Reliability and factorial validity of computer attitude scale. Educational and Psychological Meas-urement, 44, 501-505. Lin, J. C., and Lu, H. (2000), Towards an understanding of the behav-ioural intention to use a web site, International Journal of In-formation Managament, 20, 197-208. Martin, R. E. (1988). Franchising and Risk Management. American Economic Review, 78(5), 954-968. Mathieson, K. (1991). Predicting user intentions: comparing the tech-nology acceptance model with the theory of planned behavior. Information Systems Research, 2, 173-191. Miller, S. M., and Miller, K. (2000). Theoretical and practical con-siderations in the design of web-based instruction, In B. Abbey (ed.), Instructional and cognitive impacts of web-based educa-tion, Hershey, PA: Idea Group. Mok, C. (1996). Design Business: Multiple Media, Multiple Disci-plines, Mountain View, CA.: Adobe Press, Adobe Systems In-corporated. Moore, M. G. (1989). Three types of interaction, A presentation of the NUCEA Forum: Issues in Instructional, Interactiviy, National University Continuing Education Association Annual Meetings. Moore, M. G., and Kearsley, G. (1996). Distance education: A systems view, Belmont, CA: Wadsworth.Nielsen. McKinney, V., Yoon, K., Zahedi, F.M., (2002). The measurement of Webcustomer satisfaction: an expectation and disconfirmation approach. Information Systems Research, 13 (3), 296-315. Oliver, R.L., (1980). A cognitive model for the antecedents and con-sequences of satisfaction. Journal of Marketing Research, 17, 460-469. Pintrich, P. R. (1989). The dynamic interplay of student motivation and cognition in the college classroom, In Ames, C. & Maehr, M. (Eds.), Advances in motivation and achievement: Motivation - enhancing environments, Greenwich, CT: JAI, 6, 117-160. Pintrich, P. R. & Schunk, D. H. (1996). Motivation in education: The-ory, research and practice, Englewood Cliffs, NJ: Prentice-Hall. Pintrich, P.R., Smith, D.A. F., Garcia, T. & McKeachie, W. J. (1991). A manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ), National Center for Research to Im-prove Postsecondary Teaching and Learning. Porter, L. A. (1997). Creating the virtual classroom: Distance learning with the Internet. New York: John Wiley and Sons. Robey, D. (1979). User attitudes and management information system use. Academy of Management Journal. 22, 527-538. Rafaeli, S. (1998). Interactivity: From new Media to Communication, In R.P. Hawkins, J.M. Wiemann & S. Pingree (Eds.), Advancing communication science: Merging mass and interpersonal proc-ess, Newbury Park, CA: Sage, 18, 110-134. Swanson, E. B. (1982). Measuring user attitudes in MIS research: a review. OMEGA. 10, 157-165. Sarapuu, T., and Adojaan, K. (1998). Evaluation scale of educational web sites, Parper presented at the WebNet 98 World Conference of the WWW, Internet and Intranet. 24, 192-204. Simonson, M., Smaldino, S., Albright, M. & Zvacek, S. (2000). Teaching and Learning at a Distance: Foundations of Distance, Upper Saddle River. NJ: Merrill. Small, R. V. & Gluck, M.(1994). The relationship of motivational conditions to effective instructional attributes: A magnitude scaling approach. Educational Technology, 34(8), 33-40. Szajna, B. (1996). Empirical evaluation of the revised technology ac-ceptance mode.

Management Science, 42(1), 85-92. Spreng, R.A., MacKenzie, S.B., Olshavsky, R.W., (1996). A re-examination of the determinants of consumer satisfaction. Journal of Marketing, 60, 15-32. Taylor, S., and Todd, P. A. (1995). Assessing IT Usage: The Role of Prior Experience, MIS Quarterly, 19, 561-570. Taylor, J. C. (1996). Perspectives on the Education Uses of Technol-ogy, 2, 18-26. Venkatesh, V., & Speier, C. (1999). Computer technology training in the workplace: A longitudinal investigation of the effect of mood. Organizational Behavior and Human Decision Processes, 79, 1-28. Webster, J., and Hacklery, P. (1997). Teaching Effectiveness in Tech-nology Mediated Distance Learning. Academy of Management Journal. 40, 1282-1309. Yellen, R. E. (1998). Distance Learning Students: A Comparison with Traditional Students. Journal Educational Technology Systems, 26, 215-224. Yellen, R. E. (1998). Distance Learning Students: A Comparison with Traditional Studies. Journal of Educational Technology Systems, 26(3), 215-224. Yi, M. Y. & Hwang, Y. (2003). Predictingthe use of web-based infor-mation systems: self-efficacy, enjoyment, learning goal orienta-ton, and the technology acceptance model, International Jour-nal of Human-Computer Studies, 59(4), 431-449. Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The behav-ioral consequences of service quality. Journal of Marketing, 60, 2, 31-46.