Using e-Learning Blogs to Promote Students' Learning Performance in the Context of University Commerce Education

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Abstract

With the proliferation of Weblogs (blogs) use in educational contexts, gaining a better understanding of how to promote university students' learning performance using e-learning blogs has become an important topic for practitioners and academics. Based on the DeLone and McLean's (2003) educational technology/information systems success model, this study proposes an e-learning blog success model, which describes the relationships between six important e-learning blog success variables: (1) information and knowledge quality, (2) system quality, (3) service quality, (4) student use, (5) student satisfaction, and (6) student learning performance. This study will attempt to validate the proposed e-learning blog success model in the context of university commerce education. The findings of this study will contribute to a more thorough understanding of how to promote learning performance of university students in commerce education using e-learning blogs. The results of this study will also provide several important theoretical and practical implications for the development of e-learning blog success model in the context of university commerce education.

Keywords: E-Learning Blogs, System Use, Student Satisfaction, Learning Performance, University Commerce Education

1. Introduction

Recently, many studies have focused on the use of blogs in educational contexts (Kim, 2008). With the use of blogs, a community of student bloggers can create an interactive social learning environment where they can learn from the ideas of others, share knowledge resources, and compare/compete with each others' work (Du & Wagner, 2007). Thus, many educators have attempted to implement blogs in

educational settings to enhance the communication environment among students and teachers (Kim, 2008). A blog (a contraction of the term "Web log") typically describes a personal diary kept on the Web, which can be edited by an end-user – even one with few Web publication skills (IP & Wagner, 2008). According to Wikipedia (2010), a blog is a website usually maintained by a person that includes regular entries of commentary, descriptions of events, or other material such as graphics or video. The activity of updating a blog is known as "blogging" and someone who keeps a blog is a "blogger."

Despite the early state of implementation, there are several studies that list advantages for using blogs in educational settings (e.g., Kim, 2008; Maag, 2005; Williams & Jacobs, 2004; Richardson, 2005; Coutinho, 2007; Du & Wagner, 2007). For example, Maag (2005) suggests that students can share their learning experiences and express their thoughts to the teacher and peers through course blogs. Coutinho (2007) mentions that blogging inspired by Vygotsky's (1978) *social constructivist learning* theories offers students the opportunity to discuss thoughts, ideas, and opinions in a social plan, enabling the social construction of knowledge. Kim (2008) advocates that traditional computer-mediated communication applications should be replaced with blogs, and thus develops a model for the use of blogs in educational contexts by taking into account socio-technical systems theory. Kim (2008) also found that students with a shared blog were less interested in blogging as compared with students with a personal blog, necessitating the personalized-blogging circumstance that might enhance online communication activities.

Based on the aforementioned literature, blogging can be seen as a behavior of social knowledge construction, and the use of blogs in online educational settings has the potential to help enhance students' knowledge sharing and learning effectiveness. However, few studies have been conducted to investigate the effect of e-learning blogs on students' learning performance. Thus, the main objective of this study is to explore how to promote learning performance of university students in commerce education using e-learning blogs. Specifically, this study attempts to develop and validate an e-learning blog success model based on DeLone and McLean's (2003) educational technology/information systems success model.

2. Educational Technology/Information Systems Success Models

DeLone & McLean (2003) propose an updated DeLone and McLean (henceforth, "D&M") IS success model (see Figure 1) and evaluate its usefulness in light of the dramatic changes in IS practice, especially the advent and explosive growth of e-commerce. They agree with Seddon's premise that the combination of variance

and process explanations of IS success in one model can be confusing, but argue that Seddon's reformulation of the DeLone & McLean's (1992) model into two partial variance models (i.e., IS success model and partial behavioral model of IS Use) unduly complicates the success model and defeats the intent of the original model.
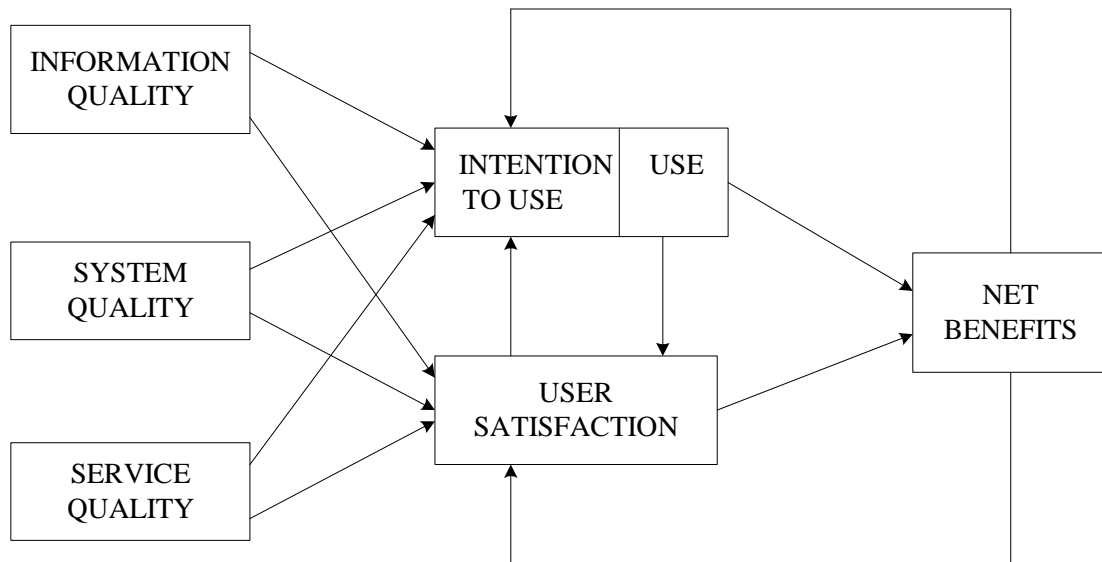

Figure 1. DeLone and McLean's (2003) Updated IS Success Model

Based on prior studies, DeLone & McLean (2003) propose an updated model of IS success by adding "service quality" measures as a new dimension of IS success model and grouping all the "impact" measures into a single impact or benefit category called "net benefit". Given that system usage continues to be used as a dependent variable in a number of empirical studies (Goodhue & Thompson, 1995; Taylor & Todd, 1995; Guimaraes & Igbaria, 1997; Igbaria & Tan, 1997; Igbaria et al., 1997; Gelderman, 1998; Yuthas & Young, 1998; Torkzadeh & Doll, 1999; Rai et al., 2002) and takes on new importance in e-commerce success measurements where customer use is voluntary, system usage and alternative "intention to use" are still considered as important measures of IS success in the updated D&M model.

DeLone & McLean (2003) also emphasize that IS success is a multidimensional and interdependent construct, making it necessary to study the interrelationships among those dimensions. As DeLone & McLean (2003) note, within the e-commerce context, customers and suppliers use the systems to make buying or selling decisions and execute business transactions, making the Internet a communication and IS phenomenon that lends itself to the updated D&M IS success model. Thus, DeLone & McLean (2003) suggest their updated IS success model can be adapted to the measurement challenges of the new Internet world (e.g., e-learning or e-commerce). In fact, previous research has used the updated D&M IS success

model in an e-learning setting (e.g., Wang et al., 2007), suggesting that the updated D&M model can also be used to develop an educational technology success model.

3. e-Learning Blog Success Model

As noted earlier, this study attempts to investigate how to use e-learning blogs to promote learning performance of university students in commerce education. Namely, this study is to develop and validate a multi-dimensional, comprehensive model that can explain the success of e-learning blogs in the context of university commerce education. Within an e-learning context, students can use blog systems to conduct learning activities, making the blog systems a communication and IS phenomenon that lends itself to the updated D&M IS success model. As noted earlier, the updated D&M model has been used to develop an educational technology success model (e.g., Wang et al., 2007). Thus, this study suggests that DeLone and McLean's (2003) updated IS success model can be adapted to the success of the new e-learning blog context. Accordingly, this study adopts DeLone and McLean's (2003) IS success model as a theoretical framework to develop a model for assessing and explaining the success/effectiveness of e-learning blogs from student perspectives in the context of university commerce education.

In accordance with DeLone and McLean (2003), this study proposes a comprehensive, multidimensional model of e-learning blog success (see Figure 2), which suggests that information and knowledge quality, system quality, service quality, student use, student satisfaction, and student learning performance are success variables in an e-learning blog context. As mentioned earlier, system usage continues to be used as an IS success variable in a number of empirical studies and continues to be developed and tested by IS researchers (Gelderman, 1998; Goodhue & Thompson, 1995; Igbaria & Tan, 1997; Igbaria et al., 1997; Rai et al., 2002; Compeau & Higgins, 1995; Doll & Torkzadeh, 1998; Taylor & Todd, 1995; Downing, 1999; Liu & Arnett, 2000; Molla & Licker, 2001; McGill et al., 2003). DeLone and McLean (2003) contend that use and intention to use are alternatives in their model, and that intention to use may be a more acceptable variable in the context of mandatory usage. However, students' use of blog systems is quasi-voluntary, and system use is an actual behavior which has been considered as the variable closer in meaning to success than behavioral intention to use. Thus, this study adopts *use* instead of *intention to use* as an e-learning blog success measure.

As noted earlier, with the use of blogs, a community of student bloggers can create an interactive social learning environment where they can learn from the ideas of others, share knowledge resources, and compare/compete with each others' work (Du & Wagner, 2007). Thus, knowledge quality is a key factor for the long-term

success and growth of an e-learning blog. However, knowledge is not explicitly distinguishable from information; these two words are often used interchangeably (Alavi & Leidner, 1991). One student's knowledge can be another's information; knowledge to a given student for a certain task at a certain time may be only seen as information for another task or at a different time (Holsapple, 2003). Thus, this study uses knowledge and information quality to substitute for information quality in the e-learning blog success model.

Seddon (1997) and DeLone and McLean (2003) have also come to a compromise on the use of net benefit as an IS success measure. However, "the challenge for the researcher is to define clearly and carefully the stakeholders and context in which net benefit are to be measured" (DeLone & McLean, 2003, p. 23). Different stakeholders may have different opinions as to what constitutes a benefit to them (Seddon et al., 1999). Since the focus of this study is on the measurement of e-learning blog success from the perspective of students, net benefit in this study refers to the learning performance of university students in commerce education within the context of e-learning blogs.
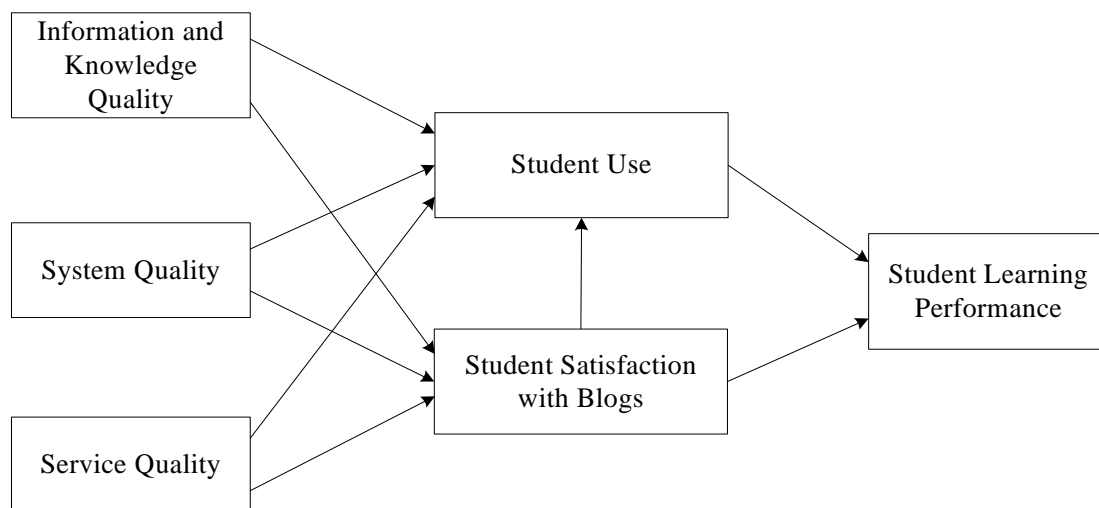

Figure 2. e-Learning Blog Success Model

This study focuses on the development and validation of an e-learning blog success model through a survey approach. The hypothesized relationship between student use, student satisfaction, student learning performance, and the three quality variables is based on the theoretical and empirical work reported by DeLone and McLean (2003). As they suggest, use and user satisfaction are closely interrelated. While positive experience with "use" will lead to greater "user satisfaction" in the DeLone and McLean model, this study suggests that greater user satisfaction will result in greater system use. Also, because of usage and user satisfaction, a certain net benefit will occur. DeLone and McLean also assume that the positive (or

negative) net benefit from the perspective of the stakeholder of the system will influence and reinforce (or decrease) the subsequent use and user satisfaction. To avoid model complexity and to reflect the cross-sectional nature of this study, the feedback links from net benefit (i.e., learning performance) to both use and user satisfaction were excluded. Based on the DeLone and McLean (2003) model and aforementioned reasoning, this study presents the following propositions.

H1: Information and knowledge quality positively affects student use in the e-learning blog context.

H2: System quality positively affects student use in the e-learning blog context.

H3: Service quality positively affects student use in the e-learning blog context.

H4: Information quality positively affects student satisfaction in the e-learning blog context.

H5: System quality positively affects student satisfaction in the e-learning blog context.

H6: Service quality positively affects student satisfaction in the e-learning blog context.

H7: Student satisfaction positively affects student use in the e-learning blog context.

H8: Student use positively affects student learning performance in the e-learning blog context.

H9: Student satisfaction positively affects student learning performance in the e-learning blog context.

4. Conclusions

With the proliferation of Weblogs (blogs) use in educational contexts, gaining a better understanding of how to promote students' learning performance using e-learning blogs has become an important topic for practitioners and academics. Based on the DeLone and McLean's (2003) educational technology/information systems success model, this study proposes an e-learning blog success model, which describes the relationships between information and knowledge quality, system quality, service quality, student use, student satisfaction, and student learning performance. This study will continue to validate the proposed e-learning blog success model in the context of university commerce education. The findings of this study will contribute to a more thorough understanding of how to promote learning performance of university students in commerce education using e-learning blogs. The results of this study will also provide several important theoretical and practical implications for the development of e-learning blog success model in the context of university commerce education.

References

[1] Alavi, M. & Leidner, D.E. (1999). Knowledge management systems: issues, challenges, and benefits. *Communications of the AIS*, 1.

[2] Compeau, D. R. & Higgins, C. A. (1995). Computer self-efficacy: development of a measure and initial test. *MIS Quarterly*, 19(2), 189-211.

[3] Coutinho, C.P. (2007). Cooperative learning in higher education using weblogs: a study with undergraduate students of education in Portugal. *World Multi-Conference on Systemics, Cybernetic and Informatics*, 11, Orlando, USA 60-64.

[4] DeLone, W.H. & McLean, E.R. (1992) Information systems success: the quest for the dependent variable. *Information Systems Research,* 3(1), 60-95.

[5] DeLone, W.H. & McLean, E.R. (2003) The DeLone and McLean model of information systems success: a ten-year update. *Journal of Management Information Systems,* 19(4), 9-30.

[6] Doll, W.J. & Torkzadeh, G. (1988) The measurement of end-user computing satisfaction, *MIS Quarterly,* 12(2), 259-274.

[7] Downing, C.E. (1999). System usage behavior as a proxy for user satisfaction: An empirical study. *Information & Management,* 35(4), 203-216.

[8] Du, H.S. & Wagner, C. (2007). Learning with weblogs: enhancing cognitive and social knowledge construction. *IEEE Transactions on Professional Communication*, 50(1), 1-16.

[9] Etezadi-Amoli, J. & Farhoomand, A.F. (1996) A structural model of end user computing satisfaction and user performance. *Information & Management,* 30(2), 65-73.

[10] Gelderman, M. (1998) The relation between user satisfaction, usage of information systems, and performance. *Information & Management,* 34(1), 11-18.

[11] Goodhue, D.L. & Thompson, R.L. (1995) Task-technology fit and individual performance. *MIS Quarterly,* 19(2), 213-233.

[12] Guimaraes, T. & Igbaria, M. (1997) Client/server system success: exploring the human side. *Decision Sciences,* 28(4), 851-875.

[13] Holsapple, C.W. (2003). Knowledge and its attributes. In C.W. Holsapple (ed.), *Handbook on Knowledge Management,* 1, Springer-Verlag, New York, 165-188.

[14] Igbaria, M. & Tan, M. (1997) The consequences of the information technology acceptance on subsequent individual performance. *Information & Management,* 32(3), 113-121.

[15] Igbaria, M., Zinatelli, N., Gragg, P. & Cavaye, A. (1997) Personal computing acceptance factors on small firms: a structural equation model. *MIS Quarterly,* 21(3), 279-302.

[16] IP, R.K.F. & Wagner, C. (2008). Weblogging: a study of social computing and its impact on organizations. *Decision Support Systems,* 45(2), 242-250.

[17] Jurison, J. (1996) The temporal nature of IS benefit: a longitudinal study. *Information & Management,* 30(2), 75-79.

[18] Kim, H.N. (2008). The phenomenon of blogs and theoretical model of blog use in educational contexts. *Computers & Education*, 51(3), 1342-1352.

[19] Liu, C. & Arnett, K.P. (2000) Exploring the factors associated with Web site success in the context of electronic commerce. *Information & Management,* 38(1), 23-33.

[20] Maag, M. (2005). The potential use of ''Blogs'' in nursing education. *CIN: Computers, Informatics, Nursing*, 23(1), 16-24.

[21] McGill, T., & Hobbs, V. & Klobas, J. (2003) User-developed applications and information systems success: a test of DeLone and McLean's Model. *Information Resources Management Journal,* 16(1), 24-45.

[22] Molla, A. & Licker, P.S. (2001) E-commerce systems success: an attempt to extend and respecify the DeLone and McLean model of IS success. *Journal of Electronic Commerce Research,* 2(4), 1-11.

[23] Rai, A., Lang, S.S. & Welker, R.B. (2002) Assessing the validity of IS success models: an empirical test and theoretical analysis. *Information Systems Research,* 13(1), 50-69.

[24] Richardson, W. (2005). Blog revolution: expanding classroom horizons with web logs. *Technology & Learning*, 26, 3, 48.

[25] Saarinen, T. (1996) An expanded instrument for evaluating information systems success. *Information & Management,* 31(2), 103-118.

[26] Seddon, P.B. (1997) A respecification and extension of the DeLone and McLean model of IS success. *Information Systems Research,* 8(3), 240-253.

[27] Seddon, P.B., Staples, D.S., Patnayakuni, R. & Bowtell, M.J. (1999) The dimensions of information systems success. *Communications of the Association for Information Systems,* 2(20).

[28] Taylor, S. & Todd, P. (1995) Understanding information technology usage: a test of competing models. *Information Systems Research,* 6(2), 144-176.

[29] Torkzadeh, G. & Doll, W.J. (1999) The development of a tool for measuring perceived impact of information technology on work. *Omega—The International Journal of Management Science,* 27(3), 327-339.

[30] Vygotsky, L.S. (1978). *Mind in Society: The Development of Higher Mental Processes*. Cambridge, MA: Harvard University Press.

[31] Wang, Y.-S., Wang, H.-Y., & Shee, D.Y. (2007). Measuring e-learning systems success in an organizational context: Scale development and validation. *Computers in Human Behavior*, 23(4), 1792-1808.

[32] Wikipedia (2010). *Blog*. Retrieved November 22, 2010, from http://en.wikipedia.org/wiki/Blog

[33] Williams, J. B. & Jacobs, J. (2004). Exploring the use of blogs as learning spaces in the higher education sector. *Australasian Journal of Educational Technology,* 20(2), 232-247.

[34] Woo, Y. & Reeves, T.C. (2007). Meaningful interaction in web-based learning: A social constructivist interpretation. *Internet and Higher Education*, 10, 15-25.

[35] Yuthas, K. & Young, S.T. (1998) Material matters: assessing the effectiveness of materials management IS. *Information & Management,* 33(3), 115-124.