

## A Model for Evaluating E-Learning Blog Success

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**Abstract.** According to the information systems success models and the task-technology fit view, this study presents a model for evaluating e-learning blog success, which depicts the relationships among seven critical e-learning blog success constructs: (1) information and knowledge quality, (2) system quality, (3) service quality, (4) task-technology fit, (5) blog use, (6) student satisfaction, and (7) learning effectiveness. A set of hypotheses are proposed according to previous literature. The proposed model will provide several important theoretical and practical implications for the development of e-learning blog success model.

**Keywords:** E-Learning, Educational Technology, Blog Success

### 1. Introduction

Recently, many studies have focused on the use of blogs in educational contexts [14]. 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 [8]. Thus, many educators have attempted to implement blogs in educational settings to enhance the communication environment among students and teachers [14]. 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 [13]. According to Wikipedia [25], 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 [4][8][14][16][26]. For example, Maag [16] suggests that students can share their learning experiences and express their thoughts to the teacher and peers through course blogs. Coutinho [4] mentions that blogging inspired by Vygotsky's [23] 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 [14] 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 [14] 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 using e-learning blogs. Specifically, this study attempts to develop an e-learning blog success model based on the DeLone and McLean's [5][6] model and the task-technology fit perspective.

## 2. Information Systems Success Models

Based on prior studies, DeLone & McLean [6] 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 [9][10][12][18][21][22][27] 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 [6] also emphasize that IS success is a multidimensional and interdependent construct, making it necessary to study the interrelationships among those dimensions. DeLone & McLean [6] 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 [24], suggesting that the updated D&M model can also be used to develop an educational technology success model.

## 3. E-Learning Blog Success Model

In accordance with the DeLone and McLean’s [6] model and the task-technology fit perspective, this study proposes a comprehensive, multidimensional model of e-learning blog success (see Fig. 1), which suggests that information and knowledge quality, system quality, service quality, task-technology fit, e-learning blog use, student satisfaction, and student learning effectiveness 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 [7][9][10][12][17][18][21]. DeLone and McLean [6] 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 [8]. 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 [2]. 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 [11]. Thus, this study uses knowledge and information quality to substitute for information quality in the e-learning blog success model.

Seddon [19] and DeLone and McLean [6] 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” [6]. Different stakeholders may have different opinions as to what constitutes a benefit to them [20]. 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 within the context of e-learning blogs.

This study focuses on the development of an e-learning blog success model through a qualitative literature review. The hypothesized relationship between task-technology fit, 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 [6]. 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. Some studies on task-technology fit [1][15] indicated that perceived fit for achieving learning requirements is related to use of e-learning system (e.g. intention to use the e-learning system as a learning tool for knowledge sharing, gathering, analyzing or constructing). Therefore, as learners consider the design of e-learning blogs can meet their learning

requirements, they may have positive attitude toward the blogs system use (learner satisfaction), increase the use of e-learning blogs, and achieve better learning performance. 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 [6]. 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 [6] 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: Information and knowledge quality positively affects task-technology fit in the e-learning blog context.
- H8: System quality positively affects task-technology fit in the e-learning blog context.
- H9: Service quality positively affects task-technology fit in the e-learning blog context.
- H10: Student satisfaction positively affects student use in the e-learning blog context.
- H11: Task-technology fit positively affects student use in the e-learning blog context.
- H12: Student use positively affects student learning performance in the e-learning blog context.
- H13: Student satisfaction positively affects student learning performance in the e-learning blog context.
- H14: Task-technology fit positively affects student learning performance in the e-learning blog context.

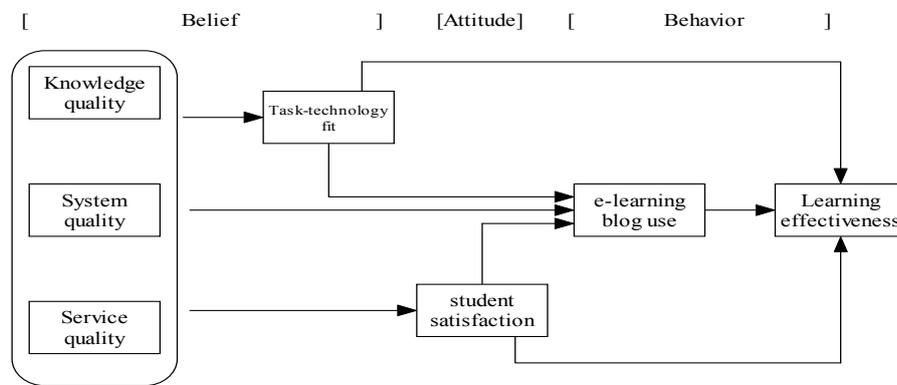


Fig. 1: E-Learning Blog Success Model

## 4. Conclusions

Based on the DeLone and McLean's [6] information systems success model and the task-technology fit perspective, 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, task-technology fit, and student learning performance. This study will continue to validate the proposed e-learning blog success model in the context of university education. The findings of this study will contribute to a more thorough understanding of how to promote learning performance of university students 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 education.

## 5. Reference

- [1] Akkoyunlu, B. & Soylu, M.Y. (2008). A study of student's perceptions in a blended learning environment based on different learning styles. *Educational Technology & Society*, 11(1), 183-193.
- [2] Alavi, M. & Leidner, D.E. (1999). Knowledge management systems: issues, challenges, and benefits. *Communications of the AIS*, 1.
- [3] Chen, H.-J. (2010). Linking employees' e-learning system use to their overall job outcomes: an empirical study based on the IS success model. *Computers & Education*, 55(4), 1628-1639.
- [4] 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.
- [5] DeLone, W.H. & McLean, E.R. (1992) Information systems success: the quest for the dependent variable. *Information Systems Research*, 3(1), 60-95.
- [6] 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.
- [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] Gelderman, M. (1998) The relation between user satisfaction, usage of information systems, and performance. *Information & Management*, 34(1), 11-18.
- [10] Goodhue, D.L. & Thompson, R.L. (1995) Task-technology fit and individual performance. *MIS Quarterly*, 19(2), 213-233.
- [11] Holsapple, C.W. (2003). Knowledge and its attributes. In C.W. Holsapple (ed.), *Handbook on Knowledge Management*, 1, Springer-Verlag, New York, 165-188.
- [12] Igarria, M. & Tan, M. (1997) The consequences of the information technology acceptance on subsequent individual performance. *Information & Management*, 32(3), 113-121.
- [13] 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.
- [14] Kim, H.N. (2008). The phenomenon of blogs and theoretical model of blog use in educational contexts. *Computers & Education*, 51(3), 1342-1352.
- [15] Lin, W.-S. & Wang, C.-H. (2011). Antecedences to continued intentions of adopting e-learning system in blended learning instruction: a contingency framework based on models of information system success and task-technology fit. *Computers & Education*, 58(1), 88-99.
- [16] Maag, M. (2005). The potential use of "Blogs" in nursing education. *CIN: Computers, Informatics, Nursing*, 23(1), 16-24.
- [17] 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.
- [18] 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.
- [19] Seddon, P.B. (1997) A respecification and extension of the DeLone and McLean model of IS success. *Information Systems Research*, 8(3), 240-253.
- [20] 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).
- [21] Taylor, S. & Todd, P. (1995) Understanding information technology usage: a test of competing models. *Information Systems Research*, 6(2), 144-176.
- [22] 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.

- [23] Vygotsky, L.S. (1978). *Mind in Society: The Development of Higher Mental Processes*. Cambridge, MA: Harvard University Press.
- [24] 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.
- [25] Wikipedia (2010). Blog. Retrieved November 22, 2010, from <http://en.wikipedia.org/wiki/Blog>
- [26] 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.
- [27] Yuthas, K. & Young, S.T. (1998) Material matters: assessing the effectiveness of materials management IS. *Information & Management*, 33(3), 115-124.