The effects of computer self-efficacy and learning management system quality on e-Learner's satisfaction

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According to the Sloan Consortium Report, distance education is the fastest growing sector of higher education. This study suggests a research model, based on an e-Learning success model; the relationship of the e-learner's self-regulated learning strategy, computer self-efficacy, and system quality perception of the e-Learning environment. This research model focuses on the learners' satisfaction and on self-regulated learning strategy. The former consists of learning activity management system, learning contents, and interaction that are provided by e-Learning system. And self-regulated learning strategy refers to the learner's computer self-efficacy and e-Learner's strategy.
As a result, not only LMS quality but also self-regulated learning strategy based on computer self-efficacy in e-Learning system is very important. We show the validity of the model empirically.

Keywords: LMS, LAMS, computer self-efficacy, self-regulated learning strategy

Introduction

The Sloan Consortium Online Learning Survey Report (2004) showed that online learning is at historically high levels and has not reached a plateau in its growth annual rate of approximately 20%. The report also revealed that a majority of institutions of higher education say online learning is just as good as traditional classroom instruction, and it is believed that online learning will experience the same relative improvements as compared to face-to-face instruction over the next three years.

The tendency of educational engineering in introducing theoretical variables explaining e-Learning effectiveness has been insufficient, except for a few information systems (i.e., Piccoli et al., 2001; Heo and Rha, 2003). Moreover, this approach of putting together information systems and educational engineering is rarely observed.

This research investigates the theoretical background of pedagogical e-Learning. It closely examines the relationship between information systems success models and e-Learning, and it suggests and verifies new research models that assess or evaluate e-Learning effectiveness based on models of educational engineering variables and information systems, which will be verified theoretically or empirically.

Theoretical Background

Computer self-efficacy and Self-regulated learning strategy

Computer self-efficacy means one's perception of their computer skills about computer use (Compeau & Higgins, 1995a). Also, it is defined as self assessment regarding one's computer skills (Venkatesh & Davis, 1996).

Computer self-efficacy is related more to computer management ability for a particular task than to partial computer skills in information technology (Compeau & Higgins, 1995a). Thatcher & Pamela (2002) reported that personal innovativeness in IT will be positively related to computer self-efficacy.

A learner's independent assessment of self-regulated learning ability is called self-regulatory efficacy (SRE; Bong, 1998). Self-regulatory efficacy is a systematic management process that is in connection with one's own thoughts, emotions, and behavior regarding one's personal goals and achievements (Schunk, 2000).

According to SRE, the learners use the strategic relationship between self-regulation and learning in reaching their chosen self-learning goal: to develop, revise, and complement the learning strategy via self feedback. The learner must make a constant effort to sustain learning motivation (Zimmerman, 1990). A lack of learning strategy is one of the important variables that explain why learners have difficulty (Balajthy, 1990).

In e-Learning, many researches have confirmed that the themes of a related learner are a key factors regarding academic achievement and satisfaction levels (Lyman, 1998). E-Learning strategy is needed for self-directed learning and self-directed learning is needed for instructional design strategy, goals, based on self-directed learning.

LMS quality

The learning management system (LMS) is applicable to information process system that understands learning content and the supports all sorts of matters related to learning. Learning content is the product created through the LMS in the e-Learning success (ELS) model. The interaction between teacher and students via correspondence is applicable to the human service process in the ELS model (Lee, 2004). Learning content has different qualities according to each teachers and producer's ability or character. Therefore, learning content is a critical, and direct assessment factor in deciding, learner satisfaction, unlike the LMS.

From different side, a lesson ready to go in 4 steps. Step 1 is choosing a method of delivery, and decides whether you want to first of all want to present resources to your students. Step 2 is review a list of templates and chooses one that suits your purpose and student. Step 3 is view the template and customises it to suit your educational needs. Step 4 is save the template and run it, exports it (Dalziel, 2007). A learning design is closely related to above all process and learner's learning strategy. In this point, learning activity management system (LAMS) is the best tool for above 4 steps and we are going to use the LAMS program in another e-Learning research.

Research model and hypotheses

We put forth the following hypotheses:

Hypothesis-1(H1): A learner's self-regulated learning strategy in e-Learning will be positively related to satisfaction.
Hypothesis-2(H2): A learner's perceived ease of use regarding the learning management system will be positively related to an e-Learner's satisfaction.
Hypothesis-3(H3): A learner's perceived usefulness regarding the learning management system will be positively related to an e-Learner's satisfaction.
Hypothesis-4(H4): A learner's perceived ease of use regarding the learning management system will be positively related to the learner's perceived usefulness regarding the learning management system.
Hypothesis-5(H5): A learner's assessment of the service quality of interaction between professor and learner will be positively related to an e-Learner's satisfaction.
Hypothesis-6(H6): A learner's assessment regarding information quality will be positively related to an e-Learner's satisfaction.
Hypothesis-7(H7): A learner's computer self-efficacy will be positively related to self-regulated learning strategy in e-Learning.

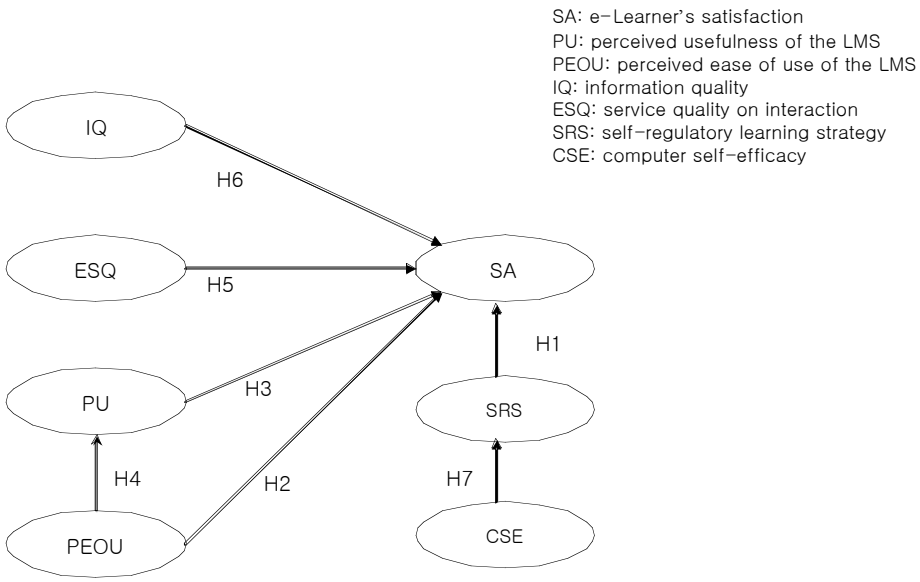

Figure 1: Research model

Data collection

All students enrolled in one of three e-learning courses at D University participated in the analysis questionnaire. Two-hundred and thirty (230) students completed the analysis questionnaire. The PLS Graph 3.0 software, modified by Chin (Chin, 1998), was used as the analysis tool. For all analysis, we used a 5-point Likert scale.

Data analysis and implications

Construct reliability is proven and discriminated validity is good because the AVE value is higher than the correlation coefficient of other constructs as shown in Table 1.
All hypotheses are accepted with the exception of H6 (IQ_SA). Figure 2 shows all analysis values.

	IQ	ESQ	PU	PEOU	CSE	SRS	SA
IQ	0.65	_	_	_	_	_	_
ESQ	0.402	0.538	_	_	_	_	_
PU	0.452	0.314	0.570	_	_	_	_
PEOU	0.329	0.342	0.394	0.814	_	_	_
CSE	0.177	0.321	0.184	0.138	0.635	_	_
SRS	0.378	0.357	0.272	0.242	0.312	0.557	_
SA	0.289	0.380	0.354	0.354	0.083	0.333	0.678
MEAN	3.2261	3.7348	3.1339	4.0326	3.1174	3.4283	3.6217
VAR	0.9378	1.0998	0.7685	0.9872	1.1799	0.9215	1.2138

Symmetrical value is square root of AVE

Table 1: Correlation coefficient of construct and AVE

The reason for the H6 (IQ_SA) rejection is explained through the survey of many learner's traits. Generally, learners are not used to judge the consistency with which learning content agrees with a self-purposed learning context. Repeatedly, learners would memorize and understand transferred knowledge from a professor and they would show a tendency toward critical learning content respectfully because of the professor's authority.

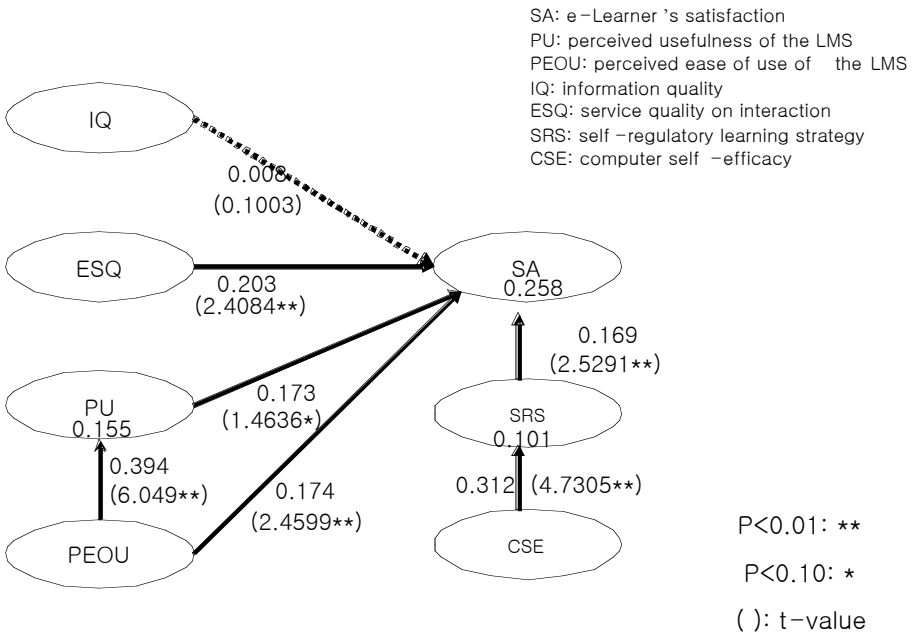

Figure 2: Path analysis result

Conclusions

In this paper, we have reported findings from a large cross-sectional study involving the LMS, computer self-efficacy, and self-regulated learning strategies.

We suggested a model that measures e-Learning effectiveness and decided an interdisciplinary method was needed, one that was in view of web based information systems, constructivism education philosophy, as well as service management theory-related learning. This study suggested a theory model of assessment regarding learning environmental satisfaction offered by e-Learning, based on the ISS model, with the adoption of a self regulated learning strategy. Especially, we emphasize in this research as follows.

First, professor's service quality with students is a very important.

Second, a learner's self-regulatory learning strategy is a very important variable related to e-Learner's satisfaction.

Third, a learner's computer self-efficacy is also a very critical component too. Furthermore, this study stresses the importance of qualitative assessment and interaction through the LMS.

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