Development of an eLearning Model to Facilitate Internal Communication

Duangta Duangekanong* and Poonsri Vate-U-Lan**

Received: February 04, 2018 Revised: September 10, 2018 Accepted: September 20, 2018

Abstract

The goal of this research was to develop a conceptual model for eLearning as a supporting tool for business process management. A mixed methods case study was used to evaluate and test an eLearning model in a case study firm. The case study focused on internal communications processes and procedures, which was a specific issue of the case firm. The eLearning model was developed through a combination of preliminary testing and expert review, which identified eight eLearning characteristics that ultimately led to process knowledge (internal communications effectiveness) through perceived usefulness, user satisfaction and knowledge transfer. Following an organizational training intervention, the model was retested. This retesting demonstrated that the conceptual framework reliably measured internal communication effectiveness. The implication of these findings is that eLearning is an effective tool for supporting business process management and that specific characteristics of eLearning influence training outcomes.

Keywords: eLearning, Internal Communication, Organizational Change

* Graduate School of eLearning, Assumption University, Samutprakarn Province 10540, THAILAND. E-mail: duangtair@gmail.com

** Graduate School of eLearning, Assumption University, Samutprakarn Province 10540, THAILAND. E-mail: poonsri.vate@gmail.com

การพัฒนารูปแบบการเรียนรู้แบบอีเลิร์นนิ่ง เพื่ออำนวยความสะดวกในการสื่อสารภายใน

ดวงตา ดวงเอกอนงค์* และ พูลศรี เวศย์อุฬาร**

รับวันที่ 04 กุมภาพันธ์ 2561 ส่งแก้ไขวันที่ 10 กันยายน 2561 ตอบรับตีพิมพ์วันที่ 20 กันยายน 2561

บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อพัฒนารูปแบบแนวคิดสำหรับอีเลิร์นนิ่งซึ่งเป็นเครื่องมือสนับสนุนสำหรับการจัดการกระบวนการทางธุรกิจ การวิจัยครั้งนี้ใช้กรณีศึกษาแบบผสมเพื่อประเมินและทดสอบแบบจำลองการเรียนแบบอีเลิร์นนิ่งในองค์กร กรณีศึกษานี้มุ่งเน้นกระบวนการและขั้นตอนการสื่อสารภายในซึ่งเป็นประเด็นเฉพาะขององค์กร กรณีศึกษา รูปแบบการเรียนรู้แบบอีเลิร์นนิ่งได้รับการพัฒนาโดยการรวมการทดสอบเบื้องต้นและการตรวจสอบโดยผู้เชี่ยวชาญซึ่งระบุลักษณะพิเศษด้านการเรียนรู้แบบอีเลิร์นนิ่งแปดข้อซึ่งนำไปสู่ความรู้ด้านกระบวนการ (ประสิทธิภาพในการสื่อสารภายใน) โดยการรับรู้ประโยชน์ความพึงพอใจของผู้ใช้และการถ่ายทอดความรู้ หลังจากการฝึกอบรมให้กับทางองค์กรแบบจำลองได้ทำการทดสอบอีกครั้ง การทดสอบอีกครั้งนี้แสดงให้เห็นว่ากรอบแนวคิดสามารถวัดประสิทธิภาพการสื่อสารภายในได้อย่างน่าเชื่อถือ ผลของการค้นพบนี้ คืออีเลิร์นนิ่งเป็นเครื่องมือที่มีประสิทธิภาพในการสนับสนุนการจัดการกระบวนการทางธุรกิจและลักษณะเฉพาะของผลการฝึกอบรมที่มีอิทธิพลต่อการเรียนรู้แบบอีเลิร์นนิ่ง

คำสำคัญ: อีเลิร์นนิ่ง การสื่อสารภายใน การเปลี่ยนแปลงขององค์กร

* บัณฑิตวิทยาลัย คณะศึกษาทางไกลผ่านอินเทอร์เน็ต มหาวิทยาลัยอัสสัมชัญ จังหวัดสมุทรปราการ 10540
อีเมล: duangtair@gmail.com

** บัณฑิตวิทยาลัย คณะศึกษาทางไกลผ่านอินเทอร์เน็ต มหาวิทยาลัยอัสสัมชัญ จังหวัดสมุทรปราการ 10540
อีเมล: poonsri.vate@gmail.com

Introduction

Every firm has periods during its lifecycle in which substantial growth and change take place, and in which the firm may become vulnerable to external factors which force this change (Phelps, Adams, & Bessant, 2007). During these periods, the firm needs to ensure that employees have sufficient information about the changes and the firm's position to remain committed and loyal, since otherwise employees may leave or may not provide sufficient energy to sustain the change (McCalman, Paton, & Sibert, 2015). One of the tools for managing communication about change during these critical interstitial periods is internal communication, or the practice of communicating within the firm about organizational processes and changes, key issues, and successes and failures (Mazzei, 2014; Verčič, Verčič, & Srirahmesh, 2012; Welch & Jackson, 2007). Although internal communication is a relatively new concept, it has undergone substantial change over its short period of existence. While early models of internal communication positioned the process as an internal marketing activity dedicated mainly to public relations-like, one-way communications (Cornelissen, 2004), more recent models such as those proposed by Mazzei (2014) and Welch and Jackson (2007) promote internal communication as a two-way, organization-wide practice. This broader perspective on organizational communication provides more room for development of employee engagement and organizational learning from the communications process. Unfortunately, much research into internal communication continues to focus on a managerial perspective and does not acknowledge the importance of bottom-up, horizontal, and informal internal communication (Verčič, et al., 2012). This means that the effectiveness of internal communication as a business process has also been neglected in the literature, and it is still considered mainly as a management communication process (Yates, 2006).

The purpose of this study is to apply eLearning as a tool for internal communication development within the organization. The research was conducted as a case study of a large furniture manufacturing firm in Thailand. This family firm was established in 2005, and has grown rapidly since then due to a dramatic increase in export demand for its products. The firm has undergone a five-year growth of about 144% in terms of employee numbers, which has strained the internal communications structures of the firm. The needs assessment interviews with managers revealed a situation where formal communications

are top-down and centralized, and where employees often resist engaging in bottom-up or horizontal communication (whether formal or informal). This situation is exacerbated by lack of training on the part of both managers and line workers, and it has already resulted in some significant production errors and other issues that could have been prevented with more effective internal communication. This research applied eLearning as a tool for the entire organization to learn about their role in effective internal communication. The study used an existing eLearning system that was deployed in the company three years ago, but to date has not been used widely for frontline employee training. Instead, it has been reserved for managerial training. This research was the first use of the eLearning system for shared organization-wide training.

Literature Review

eLearning

eLearning has been defined in different perspectives over time, including technology-based definitions, learner-oriented definitions, and interdisciplinary definitions, and which have different perspectives on technology (and changing technologies) and the role of formal and informal learning (Arkorful & Abaidoo, 2015). One of the most basic such definitions is that eLearning is "training delivered via network technology, where training refers to planned efforts to increase job-related knowledge and skill (Welsh, Wanberg, Brown, & Simmering, 2003, p. 246)." Another definition is that eLearning is "the activities and processes through which individuals acquire knowledge, skill, and attitudes by using various digital tools (Tsai, 2009, pp. 40-41)." Technological changes mean that eLearning needs to consider the role of informal learning, which is increasingly predominant (Arkorful & Abaidoo, 2015). For the purposes of this study, eLearning is defined as *the use of online communication technologies to facilitate the acquisition of knowledge, skills, and attitudes by learners in a formal training process through transmission of knowledge and opportunities to communicate and exchange information between teachers and learners*, following Arkorful and Abaidoo (2015) and Tsai (2009). eLearning draws on theories of learning such as cognitive flexibility (Cañas, Fajardo, & Salmeron, 2006) and discovery learning (Daniels, 2014) to develop an environment in which individuals can learn effectively. ELearning is frequently used in organizations to meet training requirements and improve organizational learning both on job-specific

(hard) skills and general (soft) skills (Clark & Mayer, 2016).

Some of the key internal communication structures include the use of internet, for team communication. Another structure used for the internal communication include the development of a team network by understand the issues. The last method of structuring internal communication is making use of digital tools for a variety of reasons that vary in different organizations (Tsai, 2009)

Measuring ELearning Effectiveness

ELearning effectiveness can be measured in different ways. This research focuses on two system attitudes (perceived usefulness and user satisfaction) and one usage outcome (knowledge transfer). Perceived usefulness is derived from the technology acceptance model (TAM) (Cho, Cheng, & Lai, 2009; Liaw, 2008). It represents the system user's attitude toward how well the system can help the user accomplish required tasks. ELearning satisfaction, the second outcome examined in this research, refers to the emotional response to the system based on how well the user's needs were met (Cho, et al., 2009). These two outcomes reflect the extent to which the user views the program as useful and effective (Cho, et al., 2009). The usage outcome examined is knowledge transfer, or the user's ability to retain and apply the knowledge gained within the eLearning process (Bhuasiri, Xaymoungkhoun, Zo, Rho, & Ciganek, 2012). However, most of the studies on eLearning effectiveness focus not on knowledge management, but on user satisfaction, perceived usefulness, or related outcomes like continued use of the learning system itself (Lee, 2010). This research takes a different approach by emphasizing knowledge transfer, instead of simple system satisfaction, because this is the main goal of the training process.

How eLearning Improves Communication

eLearning is an important tool in building internal communication of a company, as it helps in communicating platform interactive (Cheng, & Lai, 2009). eLearning provides various technological tools based on the developing technology, making it easier to communicate on the go with the team mates. In addition, ELearning helps in building a strong team by assigning the tasks, and accomplishing them through various ELearning applications available on Smartphones (Lee, 2010). ELearning not only allows internal

team communication, it induces the platform where every team mate can show the progress by using various illustration tools (Cho et al., 2009). eLearning helps in the development of team members, because it is used by Apple to train the employees and use them according to the set goals of the company (Cho et al., 2009). In addition, the communication platform of the company also improves the performance because human capital can be planned and implemented accordingly.

Factors in eLearning Effectiveness

There were six characteristics of the eLearning system that were initially identified as significant factors in satisfaction, including user interface, learning community, system content, personalization, system operation, and expectance confirmation. The strongest evidence for these factors was that they contributed directly to user satisfaction and perceived usefulness. The conceptual framework was built on the relationship of these factors to the above outcomes and the outcomes' relationships to each other.

User interface. The user interface refers to the extent to which the eLearning system is stable, user-friendly, and easy to use and understand (Shee & Wang, 2008). Cho, et al. (2009) found that the user interface had a direct effect on perceived usefulness. Given the known relationship between perceived usefulness and user satisfaction (Cho, et al., 2009), this research extends the potential effect of the user interface to user satisfaction as well, stating that:

- Hypothesis 1: User satisfaction is influenced by the user interface.
- Hypothesis 7: Perceived usefulness is influenced by the user interface.

Learning community. Learning community refers to the ability to interact, share materials and engage with other members of the course, including instructors and other students (Shee & Wang, 2008; Wang, 2003). These authors found that the learning community had a significant effect on user satisfaction. This effect is extended to perceived usefulness, indicating the following two hypotheses:

- Hypothesis 2: User satisfaction is influenced by the learning community.
- Hypothesis 8: Perceived usefulness is influenced by the learning community.

System content. System content and similar constructs refer to the learning materials and supports available on the system for learner use (Shee & Wang, 2008;

Siritongthaworn & Krairit, 2006; Wang, 2003). System content should be up to date, relevant, and useful to be effective for learners and to influence user satisfaction (Shee & Wang, 2008). This study also examines the role of system content in perceived usefulness, resulting in the following two hypotheses:

- Hypothesis 3: User satisfaction is influenced by the system content.
- Hypothesis 9: Perceived usefulness is influenced by the system content.

Personalization. Personalization refers to the ability to adapt the system to the learner's specific needs (Wang, 2003). A few studies have examined the role of personalization in learner satisfaction (Shee & Wang, 2008; Wang, 2003). These studies have found that personalization does affect user satisfaction. This study extends this finding to perceived usefulness as well, hypothesizing:

- Hypothesis 4: User satisfaction is influenced by personalization.
- Hypothesis 10: Perceived usefulness is influenced by personalization.

System operation. System operation refers to the technical features of the system, such as system speed, mode of access, and reliability and uptime characteristics (Siritongthaworn & Krairit, 2006). These authors found that system operation, especially reliability and speed, influenced user satisfaction with the eLearning system. Extending these results in keeping with Cho, et al.'s (2009) findings, this study proposes that:

- Hypothesis 5: User satisfaction is influenced by system operation.
- Hypothesis 11: Perceived usefulness is influenced by system operation.

Expectance confirmation. The final factor considered is expectance confirmation, or the extent to which the user's expectations of the system quality, information quality, and service quality have been met (Holsapple & Lee-Post, 2006; Lee, 2010). Expectance confirmation stems from expectancy confirmation theory, which argues that user satisfaction is determined by the extent to which a system fulfills or exceeds their expectations from previous experience and knowledge (Lee, 2010). This study extends the finding to include perceived usefulness:

- Hypothesis 6: User satisfaction is influenced by expectance confirmation.
- Hypothesis 12: Perceived usefulness is influenced by expectance confirmation.

Process Outcomes

Key process outcomes include knowledge transfer and perceived internal communication effectiveness.

Knowledge transfer. Knowledge transfer refers to the retention and use of knowledge transferred by the eLearning process (Arkorful & Abaidoo, 2015). Since the intended goal of eLearning is knowledge transfer, it is proposed here that user satisfaction and perceived usefulness will facilitate knowledge transfer. This question is difficult to answer directly from the literature review, since most research on eLearning that was reviewed does not focus on knowledge transfer, but instead emphasizes system use as the main outcome (Arkorful & Abaidoo, 2015). This study proposes that both user satisfaction and perceived usefulness will influence knowledge transfer.

- Hypothesis 13: Knowledge transfer is influenced by user satisfaction.
- Hypothesis 14: Knowledge transfer is influenced by perceived usefulness.

The intended final outcome of this study is perceived internal communication effectiveness, which is proposed in this research to be directly influenced by knowledge transfer. This hypothesis is stated as follows:

- Hypothesis 15: Perceived internal communication effectiveness is influenced by knowledge transfer.

eLearning and Process Outcomes

The goal of this research is mainly to evaluate the effect of the eLearning process on internal communication effectiveness perceptions. There has been very little research on this topic, with most such studies only noting that tools like intranets or social media can be used for both eLearning and internal communication (Bottazzo, 2005; El Ouirdi, El Ouirdi, Segers, & Hendrickx, 2015; Hearn, Foth, & Gray, 2009). Thus, this is an area where there is not much research. The case study environment is such that many of the training participants have not encountered the eLearning system previously, since while it has been deployed in the case firm it has mainly been used for management training. This study proposes that the eLearning model implementation as deployed in the case study firm will influence user satisfaction and perceived usefulness with the eLearning system. Additionally, knowledge transfer will be improved, as will perceived internal

communication effectiveness. These final hypotheses are stated as follows:

- H16: There is a significant positive difference in user satisfaction after eLearning model implementation.
- H17: There is a significant positive difference in perceived usefulness after eLearning model implementation.
- H18: There is a significant positive difference in knowledge transfer after eLearning model implementation.
- H19: There is a significant positive difference in internal communication effectiveness after eLearning model implementation.

Conceptual Model

A draft conceptual model was prepared from the literature (Figure 1). This draft conceptual model represents the expected relationships uncovered at the time of the literature review.

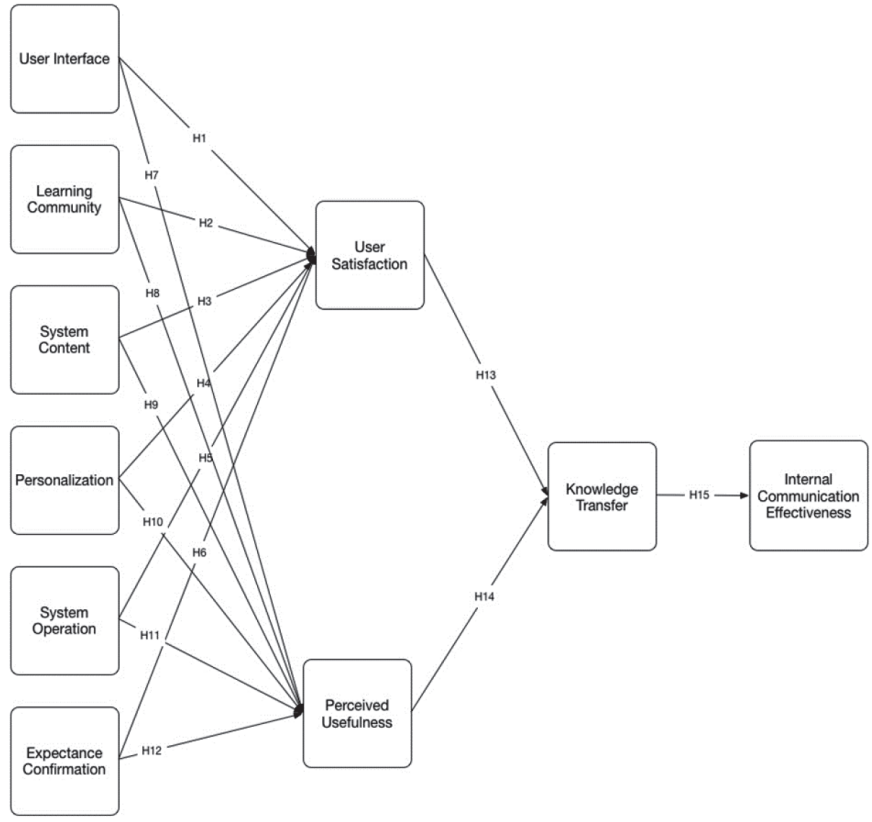

Figure 1: Draft Conceptual Model

Methods

The study used a mixed methods approach to refine the draft conceptual model, implement organizational eLearning on internal communication, and evaluate the effectiveness of the training. Quantitative research was designed as a pre-test/post-test study. The pre-test phase was conducted prior to implementation of the eLearning intervention. A pre-test questionnaire evaluated the draft conceptual model in a census sample of the case firm's employees (n = 309). The findings were analyzed using a series of multiple and single regressions, evaluated at $p < .05$ for significance.

The findings of the pre-test were used as the basis for review of the draft framework, which draw on a focus group panel of subject matter experts (n = 3). The goal of the expert review was to identify potentially missing factors in the conceptual model and add them. Following expert review and revision of the conceptual model, additional items were added to the questionnaire to measure key constructs.

The eLearning intervention was implemented over a period of three months during 2017. During this period, all organizational employees undertook the internal communications training. Non-managerial employees were assigned a series of three workflows, including training on the eLearning system, the basics of internal communication, and two-way internal communication. Managerial employees were assigned an additional four workflows with advanced topics.

The post-testing questionnaire was distributed on completion of the eLearning process for each department. Post-testing results were generated using the same process as the pre-testing results, including single and multiple regression. Paired t-tests were used to test hypotheses 16 through 19 (mean differences following the learning process).

Findings and Discussion

Pre-testing

The pre-testing questionnaire was analyzed using single and multiple regressions to test the first 15 hypotheses. All 15 hypotheses were accepted at this stage. Table 1 summarizes the regression tests conducted at this stage. As this table shows, the strongest effects on both US and PU were from EC and SO. Both PU and SU had a significant strong effect on KT, which in turn had a significant effect on ICE.

Table 1: Pre-testing Regression Models

	Model 1 (US)	**Model 2 (PU)**	**Model 3 (KT)**	**Model 4 (ICE)**
	H1-H6	H7-H12	H13-14	H15
R	.856	.861	.898	.845
R Square	.732	.741	.807	.715
Adj. R Square	.727	.736	.806	.714
S.E.	.374	.367	.308	.367
F	147.401	144.072	640.738	768.612
Sig.	***	***	***	***
Coefficients				
UI	.134***	.132***		
LC	.151*	.160*		
SC	.099*	.102**		
P	.098*	.089*		
SO	.210**	.205**		
EC	.369***	.378***		
US			.432*	
PU			.468*	
KT				.829***

Note: * p < .05 ** p < .01 *** p < .001

Expert review and finalization of conceptual model

The expert review process generally supported the reliability of the draft conceptual model. Suggestions for improvement resulted in two additional factors, User Friendly and Training. These two factors were added for evaluation in the post-testing process. Figure 2 shows the final conceptual model.

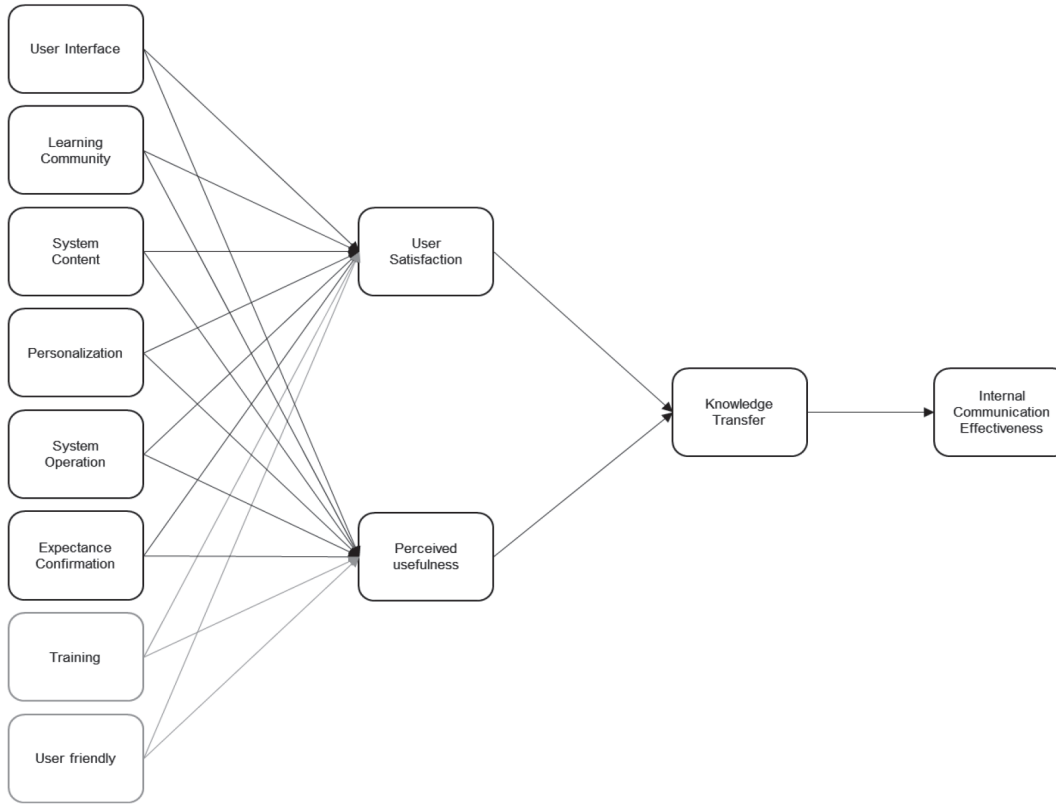

Figure 2: Final Conceptual Model

Instrument Reliability

Table 2 summarizes the alpha coefficients. All items passed a < .7, indicating appropriate reliability for this study.

Table 2: Pre-testing Scale Reliability (Cronbach's Alpha)

Scale	α
User Interface (UI)	.861
Learning Community (LC)	.846
System Content (SC)	.815
Personalization (P)	.779
System Operation (SO)	.915
Expectance Confirmation (EC)	.938
User Satisfaction (US)	.894
Perceived Usefulness (PU)	.886
Knowledge Transfer (KT)	.725
Internal Communication Effectiveness (ICE)	.710
Training (T)	.853
User Friendly (UF)	.750

Testing of Final Conceptual Model

Only the first two stages of the model (Hypotheses 1 through 12) were tested during the post-testing phase, along with the effects of the new variables of UF and T (Table 3).

Table 3: Post-testing Regression Models

	Model 1 (US)	**Model 2 (PU)**
	H1-H6	H7-H12
R	.880	.886
R Square	.774	.785
Adj. R Square	.768	.780
S.E.	.345	.335
F	128.630	137.256
Sig.	***	***
Coefficients		
UI	.076*	.072*
LC	.179*	.190*
SC	.077*	.080*
P	.093*	.084*
SO	.148*	.142*
EC	.350***	.358***
T	.131**	.131**
UF	.121**	.126**

Note: * p < .05 ** p < .01 *** p < .001

Hypotheses 15 through 19 were tested using paired t-tests (Table 4). These tests showed positive mean differences during the post-eLearning stage, allowing acceptance of these four hypotheses.

Table 4: Paired Samples T-tests (Outcome Evaluation)

		Mean	S.D.	Mean Difference	S.D.	t
Pair 1	Pre US	2.9741	.71576	-.37109	.68351	-9.544***
	Post US	3.3452	.75368			
Pair 2	Pre PU	2.9763	.71382	-.37325	.67060	-9.784***
	Post PU	3.3495	.71982			
Pair 3	Pre KT	3.0043	.69991	-.38727	.67471	-10.090***
	Post KT	3.3916	.70367			
Pair 4	Pre ICE	2.9881	.68603	-.34088	.70117	-8.546***
	Post ICE	3.3290	.75305			

Note: * p < .05 ** p < .01 *** p < .001

Discussion

The findings of the study confirmed that the characteristics of the eLearning system influence perceived usefulness and user satisfaction, which in turn influence knowledge transfer and internal communication effectiveness perceptions. This finding supports the idea that eLearning has an influence on knowledge transfer and process outcomes, which is one of its core characteristics (Arkorful & Abaidoo, 2015). The findings also support other studies, which have demonstrated that eLearning characteristics influence outcomes like perceived usefulness and user satisfaction (Cho, et al., 2009; Holsapple & Lee-Post, 2006; Venkatesh, & Davis, 2000; Lee, 2010; Liaw, 2008; Shee & Wang, 2008; Siritongthaworn & Krairit, 2006; Wang, 2003). The study also supported the role of the eLearning system in knowledge transfer (Arkorful & Abaidoo, 2015; Bhuasiri, et al., 2012). Where this study has contributed is in two areas. First and most importantly, it demonstrated the utility of eLearning for internal communication, showing that eLearning could help develop knowledge and understanding of internal communication processes and perceptions of their effectiveness within the organization. This finding supports the role of eLearning in internal communication, which has not been studied previously; instead, previous studies have only superficially connected the two concepts. The second contribution of this study is demonstrating the consistency of the effect of eLearning on different system-related outcomes, including perceived usefulness and user satisfaction.

These findings were suggested by Cho, et al., (2009), who had previously observed consistency between factors in user satsifaction and perceived usefulness as well as a relationship between them. The final contribution of this research is the development of a conceptual model that integrates different characteristics of the eLearning system to achieve business process management outcomes like internal communication changes. This model drew on several previous models (Shee & Wang, 2008; Siritongthaworn & Krairit, 2006; Wang, 2003), and the input of expert reviewers with experience in organizatioanl eLearning, creating an interdisciplinary perspective on the characteristics of eLearning and their role in ultimately ensuring organizational outcomes. While this model does need to be tested in other organizatioanl contexts, it represents an advance in understanding of the role of eLearning in organizational training.

Conclusion

In conclusion, this research has demonstrated that eLearning is effective at implementing organizational objectives like business process changes. This is critical for organizations like the case company, which are undergoing rapid organizational changes due to rapid growth or market changes and which require rapid adaptability. However, eLearning could also be used to support more routine organizational changes and provide all employees with a better understanding of the organization's business processes and goals. The implication of this finding is that firms cannot afford to ignore the benefits of eLearning or limit the use of such training to only supervisors and managers. Ultimately, a well-designed eLearning system could not just support job-related skill development, but also contribute to the human capital development of the firm's entire workforce.

It is recommended that future studies should incorporate internal communication plans of the firms according to the problems faced by them. Only few studies in the literature review presented the findings by evaluating the case studies, therefore, more investigation is required in this area.

There are several limitations to this study that do need to be considered. The main limitation is that the study was conducted as a case study and only included a single organization. This requires the conceptual model derived for the study to be tested from other business process perspectives. For example, business processes such

as technical processes like manufacturing processes could also benefit from the use of eLearning. However, this cannot be confirmed with the existing study. It also means that organizational conditions may not be fully accounted for, and these conditions could influence the outcomes of eLearning. Finally, this study did not evaluate individual learner characteristics and their potential effects on learner outcomes. These limitations offer opportunities for further research and development on eLearning, including expanding the current model to consider personal characteristics and organizational characteristics and studying interactions between these factors in the conceptual model. This type of developmental research should be conducted to determine whether the proposed model is a viable framework to explain general organizational outcomes of eLearning systems.

References

Arkorful, V., & Abaidoo, N. (2015). The role of e-learning, advantages and disadvantages of its adoption in higher education. *International Journal of Instructional Technology and Distance Learning, 12*(1), 29-42.

Bhuasiri, W., Xaymoungkhoun, O., Zo, H., Rho, J. J., & Ciganek, A. P. (2012). Critical success factors for e-learning in developing countries: A comparative analysis between ICT experts and faculty. *Computers and Education, 58*, 843-855.

Bottazzo, V. (2005). Intranet: A medium of internal communication and training. *Information Services and Use, 25*(2), 77-85.

Cañas, J. J., Fajardo, I., & Salmeron, L. (2006). Cognitive flexibility. In *International encyclopedia of ergonomics and human factors* (pp. 297-300). New York: Taylor & Francis.

Cho, V., Cheng, T. C., & Lai, W. M. (2009). The role of perceived user-interface design in continued usage intention of self-paced e-learning tools. *Computers and Education, 53*, 216-227.

Clark, R. C., & Mayer, R. E. (2016). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning* (4th ed.). Hoboken, NJ: John Wiley and Sons.

Cornelissen, J. (2004). *Corporate communications theory and practice.* Thousand Oaks, CA: Sage Publications.

Daniels, M. (2014). Discovery learning: Pros and cons. In D. C. Phillips (Ed.), *Encyclopedia of educational theory and philosophy* (pp. 235-238). Thousand Oaks, CA: Sage.

El Ouirdi, A., El Ouirdi, M., Segers, J., & Hendrickx, E. (2015). Employees' use of social media technologies: a methodological and thematic review. *Behaviour and Information Technology, 34*, 454-464.

Hearn, G. N., Foth, M., & Gray, H. L. (2009). Applications and implementations of new media in corporate communications: An action research approach. *Corporate Communications, 14*(1), 49-61.

Holsapple, C. W., & Lee-Post, A. (2006). Defining, assessing, and promoting e-learning success: An information systems perspective. *Decision Sciences Journal of Innovative Education, 4*(1), 67-85.

Lee, M. C. (2010). Explaining and predicting users' continuance intention toward e-learning: An extension of the expectation–confirmation model. *Computers and Education, 54*, 506-516.

Liaw, S. S. (2008). Investigating students' perceived satisfaction, behavioral intention and effectiveness of e-learning: A case study of the Blackboard system. *Computers and Education, 51*(2), 864-873.

Mazzei, A. (2014). A multidisciplinary approach for a new understanding of corporate communication. *Corporate Communication: An International Journal, 19*(2), 216-230.

McCalman, J., Paton, R. A., & Sibert, S. (2015). *Change management: A guide to effective implementation.* Thousand Oaks, CA: Sage.

Phelps, R., Adams, R., & Bessant, J. (2007). Life cycles of growing organizations: A review with implications for knowledge and learning. *International Journal of Management Reviews, 911-30*.

Shee, D. Y., & Wang, Y. S. (2008). Multi-criteria evaluation of the web-based e-learning system: A methodology based on learner satisfaction and its applications. *Computers and Education, 50*(3), 894-905.

Siritongthaworn, S., & Krairit, D. (2006). Satisfaction in e-learning: the context of supplementary instruction . *Campus-Wide Information Systems, 23*(2), 76-91.

Tsai, M. J. (2009). The model of strategic e-learning: Understanding and evaluating student e-learning from metacognitive perspectives. *Journal of Educational Technology and Society, 12*(1), 34-48.

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management science*, *46*(2), 186-204.

Verčič, A. T., Verčič, D., & Srirahmesh, K. (2012). Internal communication: Definition, parameters and the future. *Public Relations Review, 38*, 223-230.

Wang, Y. S. (2003). Assessment of learner satisfaction with asynchronous electronic learning systems. *Information and Management, 41*(1), 75-86.

Welch, M., & Jackson, P. R. (2007). Rethinking internal communication: A stakeholder approach. *Corporate Communications: An International Journal, 12*(2), 177-198.

Welsh, E. T., Wanberg, C. R., Brown, K. G., & Simmering, M. J. (2003). E-learning: Emerging uses, empirical results and future directions. *International Journal of Training and Development, 7*(4), 245-258.

Yates, K. (2006). Internal communication effectiveness enhances bottom-line results. *Journal of Organizational Excellence, 25*(3), 71-79.