

An Empirical Study on Relationship of Need for Cognition, Attitudes, and Intention before Installation of Corporate E-learning Programs in Taiwan

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Abstract: - It's known that business employees take the largest share of e-learning users. This figure highlights businesses' attempt to deliver their core competencies through low-cost, convenient, and flexible e-learning mechanisms. However, while numerous previous studies have focused on the use of some corporate e-learning programs (CELP), little is known about the users' pre-installation reactions to CELP. This study focused on investigation into an international accounting firm's CELP in the pre-installation phase. The relationship among users' need for cognition (NFC), attitudes towards corporate e-learning (ATT) and intentions for the use of corporate e-learning (INT) was explored. Findings of this study can illuminate that users' NFC relates positively to the users' ATT, and users' ATT relates positively to the users' INT.

Key-Words: - corporate e-learning program (CELP), accounting firm

1 Introduction

Among the many training media, e-learning has become a widely used tool for obtaining skill-based organizational outcomes [1] [2]. One reason for the emerging "e-learning revolution" [1] may be the substantially enhancing effect that the integration of new technologies into experiential education has on the learning process in the context of e-learning [3]. A report released by Learning Circuits and E-learning News (2008) showed that business employees take the largest share (73.2%) of e-learning users [4]. This figure highlights businesses' attempt to deliver their core competencies through low-cost, convenient, and flexible e-learning mechanisms. Moreover, it also implies that development of e-learning strategies should be focused on corporate employee training first. E-learning indeed offers corporations a way of improving training while increasing performance initiatives and delivering potentially higher returns on training investments [5]. Bersin & Associates (2006) stated that the corporate e-learning market in the US is at the maturity stage [6]. The year of 2005 saw a 40% growth of enterprises using e-learning to provide employee training. In Taiwan, the proportion of enterprises adopting e-learning is also

on the increase. According to Institute for Information Technology (III) (2006) [7], the e-learning adoption rate among domestic large-scale enterprises soared from 14% in 2003 to 35% in 2005, suggesting a large increase in acceptance of e-learning among domestic enterprises. However, many enterprises still have insufficient understanding of e-learning. Their knowledge of e-learning is limited to construction of a learning platform, acquisition and production of learning materials. As a result, even if they have invested a huge amount of funds into building an e-learning environment, they still cannot obtain immediate results and thus left the established environment unused. Successful introduction of e-learning requires not only construction of software and hardware facilities but also support from multiple aspects, including executives' support and commitment, internal marketing and promotion, design of proper instructions, introduction of teaching strategies, assessment of external experts, and technical support of e-learning system providers. Roblyer (2004) mentioned that educational technology is not simply a medium for disseminating learning materials but a set of

teaching methods that should be carefully designed to meet learner demands [8].

Many financial institutions invest in e-learning programs to help their employees acquire new knowledge regarding new types of services, in turn, this knowledge can help the employees meet their customers' diverse requirements. To aid in their employees' training, employers install these e-learning programs on personal computers or make the programs available on the Internet. This easy access to the programs can strengthen an institution's competitiveness, especially if the market in which the institution operates for a profit is highly competitive. In Taiwan, accounting industry is facing just such competitive pressure in terms of both service quality and administrative efficiency [9]. Researchers have noted that Taiwan has a high-performance society that encourages people to improve their performance and that rewards them for excellence [10]. Like any training program, a corporate e-learning program (CELP) also faces the challenge of attracting participants, satisfying learners and of keeping them engaged until the completion of the program [11-13]. Similar to the success of any organizational policy, CELP success depends largely on employee participation [12]. Therefore, this study chose to examine employees' need for cognition (NFC), attitudes towards corporate e-learning (ATT), and intentions for the use of corporate e-learning (INT) before installation of CELP in one international accounting firm. By analyzing employees' perceptions of CELP in the pre-installation phase, employers can understand how to arrange and improve future programs. And it is important that the CELP directors obtain both favorable reactions and unfavorable reactions so that factors contribute to the failure and success of training activities can be revealed.

2 Hypothesis Development

2.1 Need for Cognition and Attitudes towards CELP

Need for cognition (NFC) is an individual characteristic that indicates the degree to which people engage in and enjoy effortful cognitive activities [14]. People with different NFC levels exhibit different attitudes, cognitive habits, and behavioral patterns in their lives [15]. In the workplace, NFC may affect employees' attitudes toward cognitive job tasks. High-NFC employees

may tend to favor jobs that enable the employees to use their skills, to undertake tasks, and to acquire relative feedback. In fact, some previous studies have implied that NFC affects ATT in computer-mediated environments [16].

Any training program all faces the challenge of attracting participants and of keeping them engaged until the completion of the program [11]. In fact, a 20% to 50% dropout rate is common for e-learning [17]. This challenge encourages researchers to identify potential antecedents of ATT. As for individual learning, NFC is directly related to expectations for success [18]. Moreover, Vician & Brown (2001) argued that compared to high-NFC individuals, low-NFC individuals seem less likely to participate in online discussions [19]. It is obvious that NFC may play an important role in employees' ATT. However, there are few empirical studies that directly examined the relationships between NFC and ATT in the context of CELP. Thus the following hypothesis was proposed.

Hypothesis 1: Employees' NFC relates positively to the employees' ATT so that the higher the employees' NFC, the higher the employees' ATT.

2.2 Attitudes toward CELP and Intention to Use CELP

According to the theory of reasoned action (TRA) [20], employees' intention to engage in an action derives from their attitude towards the behavior. Many empirical studies have confirmed the relationship between attitude and intention [21]. TRA assumed that intention to use a system can draw strength from attitudes toward a system [22-24]. In the CELP context, employees' ATT precedes the employees' INT. TRA treats attitudes as the first antecedent of behavioral intention. Attitude is one person's positive or negative belief about doing an action. Therefore, the employees' ATT should relate positively to the employee's INT. Thus the following hypothesis was proposed.

Hypothesis 2: Employees' ATT relates positively to the individual's INT so that the higher the employees' ATT, the higher the individual's INT.

3 Methods

3.1 Participants

The participants were employees at one international accounting firm in Taiwan. This firm is among the top four accounting firms in Taiwan. A total of 330 Level I employees from auditing department participated in this study. The CELP comprised 4 e-courses, consisting of pre-audit meeting, audit practice I, audit practice II, and post-audit review [25]. The 4-e-courses were designed and developed by the cooperation of this firm and the researcher. Before installation of the CELP, employees' perceptions of and attitudes toward the CELP were surveyed. The questionnaire measured employees' perceptions of NFC, ATT, and INT regarding to the CELP. Of the 330 questionnaires distributed during Sep-Nov 2010, 312 valid responses were obtained. Thus, the response rate was 94.55% in the pre-installation survey. Table 1 presented the demographic background of the participants as Appendix 1.

3.2 Measures

This study explored employees' perceptions of CELP in the pre-installation phase. To achieve this objective, this study adopted the Need for Cognition (NFC) scale introduced by Cacioppo & Petty (1984) [26] as well as the Attitude toward Corporate E-learning (ATT) and Intention to Use Corporate E-learning (INT) scales by Fishbein & Ajzen (1975) [20]. All items were measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The items used in this study and the reliability coefficients of each construct were shown in Table 2. All items were adopted from well-developed scales that are commonly used in related research fields [20] [26] and have been extensively used in these two research fields. All reliability coefficients were above the commonly accepted lower limit of .70 [27] [28]. Because the reliability coefficients exceeded .70 and because the relationships among the study variables were consistent with the relationships indicated by previous empirical studies [16] [21], the psychometric properties of this study's items should be acceptable and should not pose a serious threat to internal validity [29].

To ensure the content validity of the survey [30], a total of 10 individuals were invited to participate in the pre-test. Five participants were employees at the case firm. Each item of the questionnaire was assessed by a three-point Likert scale. The three-point Likert scale included A as "Unclear question", B as "Needed modification", and C as "Clear question". Usually, the items that had an A-point were deleted, the items that had a B-

point were revised, and the items that had a C-point were kept for the questionnaire. The other five participants were three accounting experts and two e-learning experts. Each item of the questionnaire was also assessed by a three-point Likert scale. The three-point Likert scale included 1 as "It is not necessary to ask the question", 2 as "It is useful, but not essential to ask the question", and 3 as "It is essential to ask the question". Essentially, the questions that got a one-point score were deleted, the questions that got a two-point score were revised, and the questions that got a three-point score were kept. After the pretest, a formal questionnaire of 11 measure items was formed. The related items and Cronbach's α were shown in Table 2 as Appendix 2.

4 Results

Path analysis with a regression approach was adopted to analyze the data [31]. In general, the path coefficient that is associated with each path has a value that represents the strength of each linear relationship. As Table 3 showed, most correlations among study variables were less than 0.8, indicating that there is no threat, in this study, from multicollinearity of study variables [32]. Moreover, Table 3 presented the descriptive statistics of study variables as Appendix 3. The ATT statistics and the INT statistics had high mean values, which implied that the participants generally had positive attitudes towards and positive intention to use the CELP. The bivariate relationships showed that all significant correlations are less than 0.80, except for the correlation between attitudes towards CELP and intention to use CELP ($r = 0.844$, $p < 0.001$). The following relationships that held before the installation of the CELP are significant: NFC is correlated with ATT, which in turn is correlated with INT. For the pre-installation relationships among study variables, the regression results based on the 312 participants supported the proposed relationships in Hypotheses 1 and 2. Specifically, employees' NFC related positively to the employees' ATT ($\beta = 0.398$, $p < 0.001$) and employees' ATT related positively to the employees' INT ($\beta = 0.844$, $p < 0.001$).

5 Conclusion

In the U.S., over 90% of all public institutions offered some form of e-learning courses in 2004 and 96.2% of them agreed that e-learning was critical to the long-term strategies of their institutions [33]. Nearly 3.5 million learners in the U.S. were taking

online course in 2007 [34]. The number of online learners is still continuing to expand, with a compound annual growth rate of 21.5% [34]. As described in Alavi & Leidner's research framework, e-learning is a virtual learning environment in which a learner's interactions with materials, peers and instructors are mediated through information and communication technologies [35]. It is different from the traditional environment because information and communication technology (ICT) are used as tools to support the learning process. Employees of an organization can be the impetus for innovation and change; conversely, they can be a major stumbling block along the organization's path to optimal performance. Organizations implement CELPs to stimulate employees' creativity for change. In this study, a framework before the installation of CELP was presented and tested to explain and predict intentions to use the program. This study showed that NFC is significantly and positively correlated with ATT and that ATT is positively correlated with INT. However, whether actual usage by employees was really affected by INT should be the next topic to explore.

The finding that NFC related positively to ATT suggests that high-NFC individuals tend to have positive ATT. Like Li & Browne (2006) who found that NFC has a positive effect on users' on-line flow experiences [16], this study also concluded that learners with higher NFC attain higher ATT. Therefore, identifying employees' NFC and looking for a way to meet their needs for e-learning courses may be the most efficient way to implement CELP. This study is one of the first to explore learners' need for cognition, attitudes, and intention in relation to practical corporate e-learning. In this study, the participants comprised the employees of an international accounting firm in Taiwan. It must be kept in mind that the relationship of need for cognition, attitudes, and intention stemmed from Taiwan-based participants; thus readers should propose that the findings maybe industry-bound. To validate the external validity of the tested model in this study, future research should examine the influence of CELP on other industries.

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Appendix 1

Table 1 The demographic background of the participants

Item	Group	Persons	%
Gender	Male	58	18.6
	Female	254	81.4
	Total	312	100
Age	20 ~ 24	218	69.9
	25 ~ 29	87	27.9
	30 ~ 34	7	2.2
	Total	312	100
Education	Bachelor	220	70.5
	Master	92	29.5
	Total	312	100
Possession of professional certificate(s)	Yes	12	3.8
	No	300	96.2
	Total	312	100
Note: Of the 12 respondents with professional certificate(s), 1 reported to have both Taiwan and US CPA licenses, 7 reported to have Taiwan CPA license, and 4 reported to have US CPA license.			

Appendix 2

Table 2 Measurement and reliability

Measurement items	Cronbach's α
1. Need for cognition (NFC)	0.866
I really enjoy a task that involves coming up with a solution to a problem.	
I would prefer a task that is intellectual.	
I would prefer a task that is difficult.	
I would prefer a task that is important to one that is somewhat important but does not require much thought.	
I usually end up deliberating about issues even when they do not affect me personally.	
I prefer my life to be filled with puzzles that I must solve.	
I would prefer complex to simple problems.	
2. Attitudes towards corporate e-learning (ATT)	0.944
The idea of using e-learning is appealing.	
Using e-learning is a good idea.	
3. Intention towards corporate e-learning (INT)	0.944
I am intent on using the corporate e-learning program.	

Appendix 3

Table 3 Means, standard Deviations, and correlation among study variables

	1	2	3
Before system installation			
NFC-AVG	3.659 (.575)	.398***	.455***
ATT-AVG		3.517 (.808)	.844***
INT-AVG			3.70 (.825)

Means (standard deviations) are shown on the diagonal.

*** Correlation is significant at the .001 level (2-tailed).

NFC, need for cognition; AVG, average; ATT, attitudes towards e-learning; INT, intention