Understanding E-Learning IT Intention and Usage: A Proposed Model Extending from UTAUT

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ABSTRACT

Although Internet information technology (IT) has been applied to derive e-learning technology and systems, little attention has been paid to understanding the factors that drive such e-learning IT usage. Extending the UTAUT model (the unified theory of acceptance and use of technology), this study postulates that e-learning IT usage is directly driven by e-learning IT usage intention, facilitating conditions and self-efficacy. Furthermore, e-learning IT usage is indirectly influenced by social influence, performance expectancy and effort expectancy through the mediation of e-learning IT usage intention. This study contributes to the e-learning IT usage literature by extending the UTAUT model to investigate the unknown area of e-learning, by examining idiosyncratic drivers of e-learning IT usage intention, and by presenting the importance of self-efficacy and facilitating conditions in influencing e-learning IT usage. Finally, the limitations and implications of the study are also provided.

Keywords: Self-efficacy, social influence, facilitating conditions, performance expectancy, effort expectancy.

INTRODUCTION

The shift from a production-based to a knowledge-based economy has lead to a huge demand for knowledge workers who are capable of higher-order thinking and reasoning to solve intricate difficulties in the work place (Ong, Lai and Wang, 2004). This requires business firms to educate and train employees, anytime and anywhere (Ong et al., 2004), suggesting the important role of e-learning. In comparison with IT in general, e-learning IT in this study is considered tools for learners through Internet, which facilitate to learn knowledge efficiently. Despite the learning is transferring in a certain degree from a real world to a virtual one due to the rapid diffusion of Internet IT (Sarbaugh-Thompson and Feldman, 1998), scant attention has been paid to such online learning (or e-learning) that is different from learning in a real classroom of a school, given the geographic dispersed nature of Internet (Wellman, Haase, Witte and Hampton, 2001) and the frequent participation of learners in online activities across virtual communities (Eastin and LaRose, 2005). E-learning IT usage that is remarkably absent from much of the current IT usage research deserves a further look in depth. Improved knowledge of the key determinants of e-learning IT usage for online learners may help educational authorities prioritize promotion resources and design services that are better tailored to learner perceptions. E-learning plays a critical role in such IT as Internet that is inherently regarded as an innovative form of educating learners and students.

E-learning IT that involves online interaction by linking learners and their instructors (or teachers) together should not be studied in isolation but as integrated into learners’ channel in which they obtain knowledge through mutual obligation and communication online (e.g., Cobb, 1976). E-learning in this study is defined as online learning experience or instructional content delivered or enabled by network IT including the Internet, breaks the limitations of location and time and also creates many benefits, such as reduced cost, regulatory compliance, meeting business needs, retraining of employees, lowering cost, and providing customer support (Ong et al., 2004). E-learning IT facilitates strengthening learning of online learners, but, unfortunately, the role of the e-learning IT in influencing learners’ learning outcomes is, as of yet, unclear. Little is known about the factors that drive online learners to use the e-learning IT for accomplishing their online learning, even though abundant findings in previous research have successfully examined IT usage from utilitarian or hedonic perspectives. E-learning may be generated through some kind of
psychological affectivity that is beyond the utilitarian and hedonic perspectives.

Given that e-learning is reported to be a means of solving learning and performance problems and has become an increasingly important issue (Ong et al., 2004), the impact of e-learning is substantial and it has received fairly extensive attention from practitioners and IT researchers. However, most of the contemporary models of IT usage in previous research, such as the technology acceptance model (TAM) (Davis, Bagozzi, and Warshaw, 1989), the motivational model (MM) (Davis, Bagozzi, and Warshaw, 1992), and the unified theory of acceptance and use of technology (UTAUT) (Venkatesh, Morris, Davis, and Davis, 2003), have ignored the role of online learning via computer networks such as Internet. Such a phenomenon exists because previous research has viewed IT as a means of increasing online users’ utilitarian outcomes such as performance in the workplace (e.g., Davis et al., 1989; Venkatesh et al., 2003), or, as a means of increasing hedonic outcomes such as enjoyment (e.g., Van der Heijden, 2004). Our study can fill in this gap in the literature by theoretically postulating an extended model based on a solid foundation, UTAUT. That is, the goal of this study is to extend current IT usage theories to incorporate the notion of learning so that efficient e-learning IT usage may be found. After all, e-learning is relatively new and IT learners are a specific user group (Ong et al, 2004).

RESEARCH MODEL AND HYPOTHESES

Directly drawing on the UTAUT model, this study proposes an e-learning IT usage model displayed as Figure 1. In the proposed model, e-learning IT usage is directly driven by e-learning IT usage intention, facilitating conditions and self-efficacy. Furthermore, e-learning IT usage is indirectly influenced by social influence, performance expectancy and effort expectancy through the mediation of e-learning IT usage intention.

Previous research related to online learners has focused heavily on IT usage behavior as a critical outcome influenced by IT usage intention (Davis et al., 1989). Consequently, the first proposition is derived as below.

P1: E-learning IT usage intention positively influences e-learning IT usage.

Facilitating factors refer to the availability of support systems (Al-Khaldi and Wallace, 1999). Traditionally viewed as external controls related to the environment (Terry, 1993), facilitating conditions are defined herein as the extent to which an individual learner believes that environmental and technical infrastructures exist to prop the e-learning IT
usage. In other word, this construct is operationalized to include aspects of the technological or environmental resources that are available to remove barriers to successfully achieve e-learning IT usage.

Facilitating conditions are originally considered two dimensions, resource factors (e.g., time and money needed) and technology factors concerning compatibility issues that may constrain usage (Lu, Yu, Liu and Yao, 2003). That is, facilitating conditions are the “objective factors” and “out there” in the environment (Triandis, 1980), which several judges or observers can agree make such an act as IT usage easy to achieve. The popular argument is that when all other things are equal, IT usage intention and IT usage would be anticipated to be less likely as less time and money are available and as technical compatibility decreases (Lu et al., 2003). Online learners without technological or environmental resources to participate e-learning activities are naturally isolated by others and result in insufficient e-learning instructors’ support when in need, ultimately discouraging e-learning IT usage. On the other hand, learners require necessary resources to perform a behavior except for total volitional behavior. In other words, online learners would be unable to perform their IT usage behavior due to geographic or technical barriers that prevent the behavior from being realized (Cheung, Chang, and Lai, 2000), suggesting that facilitating conditions are required to perform e-learning IT usage. Thus, the second proposition is derived as follows:

P2: Facilitating conditions positively influences e-learning IT usage.

In IT context, self-efficacy is viewed as a learner’s perception of his or her ability to use e-learning IT in the accomplishment of a learning task rather than reflecting simple component skills. In other words, self-efficacy perceptions are a significant precursor to e-learning IT usage. This proposition is supported by research regarding IT usage (Compeau and Higgins, 1995a) and research in a variety of other domains (Bandura et al., 1986). Previous research by Maish (1979) included a variable that measured the extent to which the user felt “prepared to use” the new IT system. The variable proposed by Maish (1979) is conceptually quite similar to self-efficacy and was found to be related to the degree of system use (Compeau and Higgins, 1995b). Previous research indicates that the more experience one acquires online, the more important are concerns of control over individual information (Ong et al., 2004), suggesting that IT self-efficacy will have a significant effect on e-learning IT usage. There is more, the “willingness to change” construct measured by Barki and Huff (1990), which reflects self-efficacy partially, was found to be associated with the usage of a decision support system (Compeau and Higgins, 1995b). Consequently, the proposition is derived as below.

P3: Self-efficacy positively influences e-learning IT usage.

Social influence represents the degree to which online learners perceived that important others believe them should use network IT, and it is also considered similar subjective norm in previous theories such as TRA, TAM2 and so on (Venkatesh et al., 2003). Social influence that reflects certain perceived pressure to perform IT usage behavior in question reflects the extent to which individuals of a society influence one another’s IT usage intention (Venkatesh et al., 2003). Such an influence perceived by individuals is exerted through messages that consequently facilitate to form their perceptions of the value of an online service or product (Fulk and Boyd, 1991), strengthening their e-learning IT usage intention. Therefore, the proposition can be derived as follows:

P4: Social influence positively influences e-learning IT usage intention.

Effort expectancy is the expected degree of ease associated with the e-learning IT usage by individual learners (e.g., Venkatesh et al., 2003). Even if the overall e-learning IT usage in general is sometimes not considered difficult to learners, most learners still need to adjust the usage of specific IT that is new to them. Thus, whenever individual learners expect free of mental effort regarding e-learning IT usage (considered low effort expectancy), their e-learning IT usage intention is more likely to increase than that of others with high effort expectancy. Individual learners’ e-learning IT usage intention may be discouraged in the beginning whenever they perceive tremendous efforts that are
required for utilizing e-learning IT in the future. Therefore, the proposition is derived in the following.

P5: Effort expectancy negatively influences e-learning IT usage intention.

Performance expectancy is the degree to which online learners believe that using e-learning IT would enhance their learning performance. Similar to the phenomenon in which performance expectancy is the strongest predictor of intention and remains significant in previous research at all points of measurement in both voluntary and mandatory settings (Venkatesh et al., 2003), the online learners are driven by their high levels of performance expectancy on e-learning that displays substantially extrinsic motivation to individuals’ usage intention (Davis et al., 1992; Venkatesh et al., 2003). Based on the above literature review, the proposition is thus proposed as below.

P6: Performance expectancy positively influences e-learning IT usage intention.

DISCUSSION

The findings of this study bring on several implications for both IT educational administration and learners in managing e-learning IT usage intention and usage. This study provides rationale that learners who receive strong social influence are likely to general e-learning IT usage intention. Social influence plays a more significant role than other constructs (such as perceived enjoyment) as it affects e-learning intention directly and indirectly through the intention-behavior path. This phenomenon suggests that educational instructors value online messages or news broadcasted by social affiliation of learners such as classmates, which may impact their e-learning IT usage intention highly. This model suggests that the amount of e-learning IT usage through Internet counts heavily on the amount of social influence they receive in a real world. Online learners have to realize that they cannot have sufficient learning if they are isolated from social others (e.g! their classmates) in a real world that may also provide learning support and learning recommendations online. Besides, our literature review confirms that learners’ performance expectancy is not arbitrary, but rather based on key attributes of a voluntary learning context.

Our study suggests that the learning benefit learners derive from e-learning IT usage corresponds to another extraneous factor, their facilitating conditions. E-learning IT researchers should take proactive steps to carefully examine the facilitating conditions in terms of IT product or service in order that facilitating conditions can be increasingly influential to e-learning IT usage.

As learning to use new e-learning IT may be uneasy to some learners, any combination of technical difficulty, computer anxiety, and systems complexity can negatively influence users, as they perceive lots of mental efforts taken for using the technology (Taylor, 2004). This study offers an understanding as to the determinant process of strengthening e-learning IT usage intention through performance expectancy. That is, those who expect high performance are likely to have strong intention to use e-learning IT. For this reason, performance expectancy of online learners can be surveyed by educational service providers as a checkpoint to precisely evaluate the strength of usage intention of the learners or students. Hence, it is important for educational service providers to monitor the effort expectancy messages of online learners and provide incentives for initial IT users to experience e-learning IT so as to minimize the negative effect of effort expectancy on IT usage intention, given that previous research concluded that the effects of effort expectancy decrease with experience (Venkatesh et al., 2003).

In the context of workplace IT usage, facilitating conditions are thought to contain the availability of training and provision of support. This variable has been tested and approved of the proposed effect on IT usage in previous research (Lu et al., 2003). The finding for the relationship between facilitating conditions and e-learning IT usage provided an additional support for the Triandis model (Triandis, 1980), suggesting the importance of external conditions such as the access to Internet, technical assistance, and so on. For example, educational service providers may provide with friendly functions that help users to search information they seek with different keywords. The more functions that facilitates users to practice e-learning via Internet, the stronger their e-learning IT usage is thus strengthened.
LIMITATION AND FUTURE RESEARCH

This study suffers from some limitations linking to proposition interpretation. The first limitation is that the results cannot be construed to be representative of all online learners from all the nations in the world, since cultural psychologists reveal that cultural differences across nations may influence learner evaluations on e-learning IT and systems from one country to another. The focus of this study should be seen as an exploratory theory proposing the impact of five different exogenous determinants on learners’ evaluations of online education and learning as well as their e-learning intention and IT usage. The second limitation is that this study does not provide empirical results for the propositions. In other words, statistical tests in future research may be necessary.

Researchers can take note of these limitations and drawbacks for further improvement by including more critical antecedents. Accordingly, this study can be further expanded by future research that extends this model to study continuance of e-learning IT usage behavior via long-term observation with sample of working professionals rather than purely IT usage at a certain point of time. Researchers can take note of these shortcomings in planning any future research work.

REFERENCES

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