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Understanding Web-based learning continuance intention: The role of subjective task value☆

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ABSTRACT

The success of Web-based learning depends on learner loyalty, i.e., subsequent continued usage (continuance). We extended the Unified Theory of Acceptance and Use of Technology (UTAUT) by introducing components of *subjective task value* into a model for studying learners' continuance intentions in Web-based learning. Based on survey data from 286 respondents, SEM was employed to assess the model. The results indicated that *performance expectancy*, *effort expectancy*, *computer self-efficacy*, *attainment value*, *utility value*, and *intrinsic value* were significant predictors of individuals' intentions to continue using Web-based learning, while *anxiety* had a significant negative effect. The results suggested the beneficial effect of positive subjective task value on stimulating learners' intentions to continue using Web-based learning, which is as important as performance expectancy and effort expectancy. Implications and limitations of our study are discussed.

1. Introduction

The proliferation of network access and advances in Internet/Web technology, in conjunction with the social demand for improved access to higher education, have stimulated the rapid growth of e-learning. It also helps organizations by reducing the cost of and increasing availability of training. Cortona consulting estimated that the e-learning market will reach $50 billion in 2010. Seventy percent of the universities in the US are now providing e-learning courses.

Web-based learning is based on material delivered through a Web browser over the public Internet, private intranet, or extranet. Its success depends mainly on learners' loyalty, i.e., continued use. The importance of continuance is obvious: customer turnover can be costly—the cost of acquiring new customers is higher than that of retaining existing ones.

We desired to explore individuals' intentions to continue using Web-based learning in a voluntary setting. Two models were used to assess the technological and value issues and thus obtain an understanding of individuals' actions: Unified Theory of Acceptance and Use of Technology and expectancy-value model of achievement motivation.

As with any IS usage, the trade-off between benefits and costs has an important impact on continuance intention [15]. Researchers have conceptualized value as a function of a "get" component, i.e., benefits an individual receives, and a "give" component, i.e., an individual's financial and nonmonetary costs in acquiring and using a product or service [31,35]. Value theorists argue that value is a centrally held and enduring belief that plays a central role in everyday decisions [23].

Eccles et al.'s [17] expectancy-value model of achievement motivation links individuals' choice, persistence, and performance to expectancy for success and subjective task value. This model outlines four motivational components of subjective task value: attainment value (importance), intrinsic value (interest), utility value (usefulness), and cost. They showed that subjective task value predicted course plans and enrollment decisions in mathematics, physics, and English courses [16,18,27]. Consequently, we also argued that subjective task value influenced Web-based learning continuance intention through these variables.

Web-based learning acceptance and usage can be partially explained by the Unified Theory of Acceptance and Use of Technology (UTAUT) [40], which is a parsimonious and robust model of individual acceptance of new IT. While it initially focused

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on user acceptance and usage of IT in the workplace, it has recently been used in understanding the acceptance and use of mobile services and Web-based applications [8,11,43]. Therefore, we considered the major UTAUT constructs in determining usage intention and behavior: performance expectancy, effort expectancy, social influence, and facilitating conditions.

2. Theoretical background

2.1. Web-based learning

There are many approaches to Web-based learning. On one end of the spectrum, individuals access information resources on the Web to learn and solve daily tasks by themselves however, in our study, we focused on online classes offered at institutions of higher education. It usually provides certificate, diploma, or degree programs, normally adopting a course management system that integrates a set of tools to support online content delivery, learning communities, and assessment. Some learning environments also facilitate cooperative learning, etc.

Time flexibility has been reported as a major reason for students to choose to study online. Other reasons include less conflict with work, the convenience of not having to travel to attend a traditional face-to-face class, and the flexibility of accessing course materials anytime and anywhere. While Web-based learning has advantages, several weaknesses have also been described, including delay in response [32], feelings of isolation, and danger of arbitrariness [21].

There have been many studies of factors that influence learner satisfaction or outcomes. Carswell and Venkatesh [9] examined the influence of technological characteristics on learners' outcomes (intention, acceptance, and performance). Other studies have examined the effect of learning patterns [25] on performance and also focused on the impact of personal cognition such as self-efficacy [42], computer confidence [30], and locus of control [28].

2.2. Unified Theory of Acceptance and Use

TAM posited that *perceived usefulness* and *perceived ease of use* were salient beliefs in determining user acceptance and use of IT. Venkatesh and Davis [39] extended the model to explain *perceived usefulness* and *usage intentions* in terms of social influence and cognitive instrumental processes. The Unified Theory of Acceptance and Use of Technology (UTAUT) was based on studies of eight competing models in IS adoption research. It posited that *performance expectancy*, *effort expectancy* and *social influence* were direct determinants of *intention to use*, and that facilitating conditions and intention were direct determinants of usage behavior.

It seemed reasonable to assume that UTAUT could be used to study the acceptance and use of Web-based learning; however it ignored the impact of value. Bandura [1] suggested that an individual with high self-efficacy and outcome expectations may have low intention to continue using Web-based learning if he or she thinks that the process has low benefit and high cost. Consequently, we introduced subjective task value to UTAUT in addressing our research question.

2.3. Subjective task value

The expectancy-value model of achievement motivation posits that individuals' performance, persistence, and choice are directly predicted by their expectancies of success on the tasks and the subjective task value that represents success. Expectancy for success is thus analogous to self-efficacy. Subjective task value also can involve attainment value (the personal importance of doing well on a task), intrinsic value (enjoyment from performing the activity), and utility value (how well the task relates to current and future goals). Cost is conceptualized in terms of the negative aspects of engaging in the task (e.g., anxiety and fear of failure), as well as the amount of effort needed to succeed and any lost opportunities in other work.

Eccles and her colleagues showed that components of subjective task value predicted both intentions and actual decisions to keep taking courses in the context of traditional classroom education. Also, components of subjective task value predicted high school students' intention to keep taking mathematics [46] or to attend graduate school [2].

3. Research model and hypotheses

Web-based learning is an emerging application of the WWW and is different from IS used in the workplace. Existing variables of UTAUT do not reflect learners' motives. Homer and Kahle argued that values are a social factor that guides an individual's behavior. Values play such a central role, providing a basis for understanding human behavior in and across culture. Therefore we extended UTAUT by adding subjective task value.

Although there are several classifications of values, our model adopted the specification of Eccles et al., since Web-based learning is an achievement-related activity. This expectancy-value model of achievement motivation focuses on subjective task value as a key factor influencing intention and choice. In our study, the dependent variable was Web-based learning continuance intention, which referred to the subjective probability that an individual would continue using Web-based learning.

Venkatesh et al. indicated that seven constructs were significant direct determinants of intention or use. They theorized that attitudes toward using technology, self-efficacy, and anxiety were not direct determinants of intention. The intrinsic value component of our subjective task value was measured in a manner analogous to Venkatesh et al.'s measure of attitude but we did not include attitude *per se*. Self-efficacy was included in our model, while the cost component of subjective task value was conceptualized in terms of the negative aspects of engaging in the task. In our study, we identified four negative aspects of Web-based learning: social isolation, anxiety, delay in responses, and risk of arbitrary learning. Fig. 1 shows our model; in addition to the four core constructs of UTAUT, computer self-efficacy and the components of subjective task value were assumed to affect individuals' intentions to continue using Web-based learning.

3.1. Performance expectancy

Performance expectancy is the extent to which a person believes that a system enhances his or her performance. It pertains to perceived usefulness in TAM. Chau [10] defined two types of

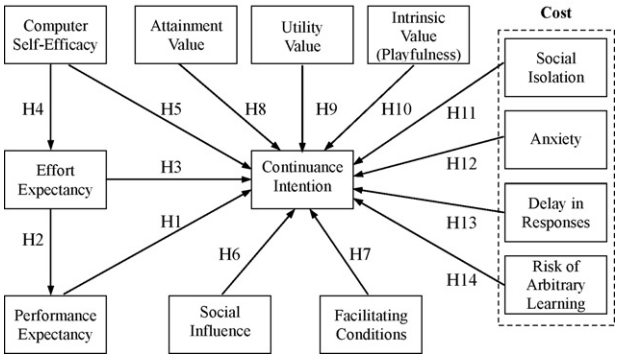

Fig. 1. Research model for Web-based learning continuance.