The roles of social factor and internet self-efficacy in nurses' web-based continuing learning

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ARTICLE INFO

SUMMARY

This study was conducted to explore the relationships among social factor, Internet self-efficacy and attitudes toward web-based continuing learning in a clinical nursing setting. The participants recruited were 244 in-service nurses from hospitals in Taiwan. Three instruments were used to assess their perceptions of social factor, Internet self-efficacy (including basic and advanced Internet self-efficacy) and attitudes toward web-based continuing learning (including perceived usefulness, perceived ease of use, affection and behavior). Structural equation modeling (SEM) was utilized to identify the hypothesized structural model. The results of this study support that social factor is a significant factor correlated to Internet self-efficacy and attitudes toward web-based continuing learning (including perceived usefulness, perceived ease of use and affection). In addition, nurses' basic Internet self-efficacy plays a key role in attitudes including perceived usefulness, perceived ease of use and affection. However, advanced self-efficacy was not correlated to any of the attitudes. The behavior dimension was not linked to social factor or Internet self-efficacy, but was linked to perceived ease of use and affection.

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Introduction

Web and Internet-based learning is recognized as an effective learning approach for improving nursing knowledge and skills (Cobb, 2004; Lu et al., 2009). The inherent nature of web-based learning such as flexibility and resource richness may encourage nurses to take up such learning for their continuing education (Wilkinson et al., 2004; Yu et al., 2007). On-line learning has therefore been widely used for professional development and nursing skills training in clinical practice (e.g., Chen et al., 2008; Wilkinson et al., 2004; Yu and Yang, 2006).

The attitudes toward web-based professional development and continuing learning have been considered in several studies (Kao and Tsai, 2009; Liang et al., 2011). Nurses' attitudes are regarded as the most important factor which may promote web-based learning for in-service education (Yu and Yang, 2006). Although most nurses have revealed positive attitudes toward web-based learning for continuing education in clinical settings (Atack, 2003; Yu and Yang, 2006), there is still a need to explore the factors that determine their attitudes.

Although the technology acceptance model (TAM) is suggested as a useful model for explaining attitudes and behavior in the use of technology, it has been integrated with extended variables including

personal and social factors. For example, there has been research studying web-based learning using TAM with additional factors such as self-efficacy (Chatzoglou et al., 2009), Internet self-efficacy (Chen and Tseng, 2012), social influence (Lee et al., 2011; Park et al., 2012) as well as organizational support including technical support (Bhattacherjee and Hikmet, 2008; Ngai et al., 2007; Sánchez and Hueros, 2010) and management support (Chatzoglou et al., 2009).

The studies related to web-based learning have been extensive. However, little research has analyzed the predicting factor of web-based learning in organizational settings (Karaali et al., 2011), even though it has been indicated that organizational environment influences may have effects on employees' motivation to use web-based learning in the workplace via the perceived usefulness of such learning systems (Cheng et al., 2012). The organizational learning environment encompassing factors such as policies and group enrollment has been regarded as playing an influential role in web-based learning processes (Atack, 2003). Recent research on web-based workplace learning has emphasized the influence of employees' characteristics and technological attributes, but with little attention being paid to organizational environment factors such as social influence (Cheng et al., 2012).

Literature

Social Factor and Attitudes Toward Web-Based Learning

Social environment may support users to possess more positive attitudes toward Internet usage (Cheung et al., 2000). Social influence, which may affect perceived usefulness and perceived ease of

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use, needs to be considered whiling designing and implementing e-learning systems (Lee et al., 2011). Davis et al. (1989), who proposed the technology acceptance model (TAM), suggested further research to better understand the impact of social influences on usage behavior. It was claimed that behavior is affected by social norms, and is dependent on others' messages reflecting what individuals should do (Triandis, 1971). Triandis (1980) redefined this and called it social factor, through which individuals may internalize subjective culture originated from reference groups and interpersonal agreements made with others. However, social factor, which was considered as an explaining factor of the Internet usage (Cheung et al., 2000), has not received enough attention in the web-based learning field.

Internet self-efficacy and attitudes toward web-based learning

Internet self-efficacy is defined as web users' confidence in using the Internet (Tsai, 2012; Wu and Tsai, 2006), and is regarded as an important predictor of attitudes toward web-based professional development (Kao and Tsai, 2009). Learners with higher Internet self-efficacy may have more probability of success in web-based learning tasks (Tsai and Tsai, 2003). It has been reported that nurses reject web-based continuing learning because of their lack of relevant competence (Yu et al., 2007). Nurses with higher Internet self-efficacy, on the other hand, tend to reveal higher motivation for web-based continuing learning (Liang and Wu, 2010). Also, Liang et al. (2011) indicated that nurses' Internet self-efficacy is positively related to their attitudes toward web-based continuing learning (Liang et al., 2011).

Social factor, Internet self-efficacy, attitudes and behavior toward web-based learning

Social factor, including managerial support, job support and organizational support, is positively related to perceived usefulness; moreover, perceived usefulness mediates the environmental influences on individuals' intention to use an e-learning system (Cheng et al., 2012). Furthermore, the empirical study of Liang et al. (2011) indicated that nurses' Internet self-efficacy (including basic and advanced Internet self-efficacy) can be linked to their attitudes toward web-based continuing learning (including perceived usefulness, perceived ease of use, affection and behavior). Bandura's (1997) social cognitive theory suggested that social support is vital to self-efficacy, and influences behavior through self-efficacy. Study results have indicated that teacher's support is positively related to learning strategy, and this relationship is mediated by self-efficacy (Yildirim, 2012). In addition, it has been indicated that the organizational environment factor may have influences on Internet self-efficacy; in turn, the adoption of the Internet is influenced by Internet self-efficacy (Lam and Lee, 2006). The mediation role of Internet self-efficacy between social support and online learning outcomes has also been found (Chu, 2010; Chu and Chu, 2010).

Organizational social influence on attitudes and behavior

The propositions of TAM (Davis et al., 1989) specified that external variables may have effects on attitudes, and then the behavioral intentions are influenced by these attitudes. Founded on the theory of reasoned action (TRA), an individual's behavioral intention is determined by his/her attitudes (Ajzen and Fishbein, 1980). Based on the theoretical rationale of TAM, various studies have supported that social factor has an influence on the attitudes and behavioral intention of e-learning and web-based training; moreover, attitudes are considered as significant determinants of behavior to undertake such learning (Cheng et al., 2012; Lee et al., 2011; Park et al., 2012).

It has also been revealed that social factor is a predictor of intention and behavior regarding the Internet and web usage at work (Cheung et al., 2000). In addition, the empirical study of Karaali

et al. (2011) indicated that social factor may influence employees' attitudes toward web-based learning and behavior intention; furthermore, behavioral intentions are determined by attitudes.

Hypothesized model

According to the aforementioned propositions (Bandura, 1997), in this study it is supposed that social factor in the organizational environment may enhance nurses' personal Internet self-efficacy including both basic and advanced Internet self-efficacy. In turn, Internet self-efficacy may improve nurses' attitudes toward web-based continuing learning including perceived usefulness, perceived ease of use, affection and behavior (Liang et al., 2011). Finally, attitudes including perceived usefulness, perceived ease of use and affection may reinforce nurses' behavioral intention to use web-based continuing learning (Ajzen and Fishbein, 1980).

In addition, social factor may be positively correlated to attitudes toward web-based learning (Cheng et al., 2012; Lee et al., 2011). Also, behavioral intention may be determined by social factor (Karaali et al., 2011). The hypothesized model which consists of four aspects including organizational factor, personal factor, attitudes and behavior is presented in Fig. 1.

Methods

Participants

A total of 244 in-service nurses from private hospitals (66%) and the public sector (34%) in Taiwan were enrolled in the study survey. All of the nurses were female, with an average nursing work experience of 10.26 (SD = 8.67) years. Among them, 99 (40.6%) worked in medical centers, while 145 (59.4%) worked in regional hospitals.

The education levels of the participants were bachelor's degree (66.4%), junior college (29.1%), and master's degree (4.5%), while 119 (48.8%) were aged from 21 to 30, 76 (31.1%) were aged between 31 and 40, and 40 (16.4%) were from 41 to 50.

Ethical considerations

All the nurses enrolled in this study responded to the questionnaire voluntarily. Prior to answering the questionnaire, they were informed that they had the right to withdraw from the survey at their own free will, and were guaranteed that their responses would be
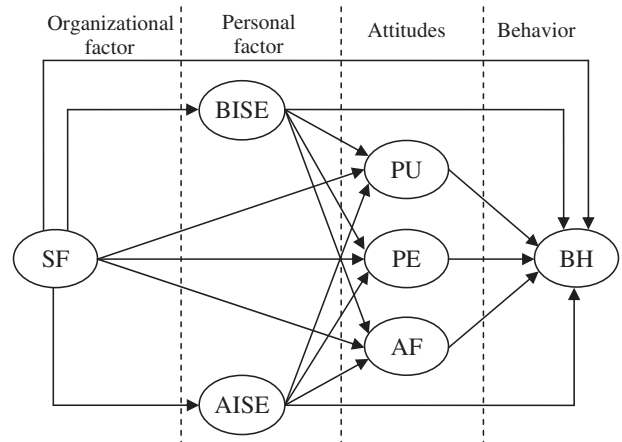
Fig. 1. The hypothesized model of structural relations among SF, BISE, AISE, PU, PE, AF and BH. SF: social factor; BISE: basic Internet self-efficacy; AISE: advanced Internet self-efficacy; PU: perceived usefulness; PE: perceived ease of use; AF: affection. BH: behavior.