



Users' preferential factors in Web-based e-learning systems for ease of workplace learning in Korea



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ARTICLE INFO

Article history:

Received 5 September 2014

Received in revised form 27 January 2015

Accepted 27 March 2015

Keywords:

Web-based

Web-based e-learning systems (WLS)

Ease of workplace learning

Users' preferential factors

ABSTRACT

While a number of studies investigated informal learning in Web-based environments and usability, the users' preferential factors affecting workplace learning in Web-based e-learning systems (WLS) have not been examined in detail in Korea. In this regard, the major purpose of this study is to investigate the users' preferential factors of ease of workplace learning in Korean WLS business organizations.

A total of 517 employees from five major conglomerate groups in Korea participated in a Web-based training course and answered the survey questionnaire. Four feedback and service related factors are important, which can be explained by high-context culture of Korea. With the understandings of conservative cultural effect of high-context in Korea, instructors can start to find the required special designs considering feedback and service-related factors as well as contents for successful Web-based learning systems.

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1. Introduction

Social web has recently begun to receive much attention for informal learning in work environments as informal learning influences online information in social web and training strategies (García-Peñalvo, Colomo-Palacios, & Lytras, 2012; Song & Lee, 2014). Web-based e-learning systems (WLS) is defined as an online video based learning systems in corporations utilizing computer and audio-visual technology to present information verbally as static pictures or diagrams and as animated graphics or video. In Korea, many firms are developing WLS to advance in learning and training in organizations (KET (Korea Economics Times), 2011, February 23; Kmobile, 2011, October 4).

Users have different preferences on the WLS features because of diversity among users in terms of computer experience and gender (Chen, 2005; Chrysostomou, Chen, & Xiaohui Liu, 2009), and prior experience (Minetou, Chen, & Liu, 2008). Users' preferences can be different in terms of the interface features such as menu format and interface layout (Chrysostomou et al., 2009). Users' unique learning patterns may be affected by various users' preferential factors (Chrysostomou et al., 2009; Southwell, Anghelceva, Himelboima, & Jonesa, 2007; Yang & Tsai, 2008). For example, the learning process in Wiki involves learners' perception of interaction patterns with their peers and instructor (Huang & Kazuaki Nakazawa, 2010). Previous studies indicated that learners' preferences toward learning systems were strongly related to attitudes toward learning and academic accomplishment (Chang &

Tsai, 2005; Chang, Hsiao, & Barufaldi, 2006; Chuang & Tsai, 2005; Yang & Tsai, 2008).

Informal learning can be described as a new process oriented in learning that considers different dimensions such as the environment, motivation and pedagogical influence (Ebner, Lienhardt, Rohs, & Meyer, 2010). Informal learning is supported by several resources such as books, self-study programs, performance support materials and systems, coaching, communities of practice, and expert directories. Previous recent studies investigated informal learning in Web-based contexts such as electronic revision and recapitulation tools (Christ, Weber, & Sato, 2012), knowledge exchange through social links (Filipowski, Kazienko, Bródka, & Kajdanowicz, 2012), Wiki as a corporate learning tool (Milovanović, Minović, Štavljanin, Savković, & Starčević, 2012), communities of practice based on a Web platform (Trindade et al., 2012), and expertise mining in social web (Valencia-García, García-Sánchez, Casado-Lumbreras, Castellanos-Nieves, & Fernández-Breis, 2012). A number of usability studies exist on usability on online store (Christophersen & Konradt, 2012), e-commerce website (Hasan, Morris, & Steve Probets, 2012), software (Hegh & Jensen, 2008), cell phones (Kim, Proctor, & Gavriel Salvendy, 2012), and handset (Zhang, Rau, & Salvendy, 2010).

The workplace informal learning has received an increasing importance (Gaeta, Loia, Mangione, Miranda, & Orciuoli, 2014; Gaeta, Mangione, Miranda, & Orciuoli, 2013; Zervas, Alifragkis, & Sampson, 2014). One of the issues in informal learning in workplace is the acceptance of workplace e-learning systems (Cheng, Wang, Yang, Kinshuk, & Peng, 2011). To explain user acceptance of new technology, the technology acceptance model (TAM) by Davis (1989) is one of the most influential and widely used (King & He, 2006). In order to increase acceptance, based on technology acceptance model, effort expectancy which is related

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to ease of e-learning is a crucial attribute to be accomplished (Wang, Wu, & Wang, 2009). This study chose to use ease of learning for learning performance as learning difficulties are important issue of learning process which affect learning effectiveness (Korhonen, Linnanmäki, & Aunio, 2014) and low achievement (Kiuru, Aunola, Nurmi, Leskinen, & Salmela-Aro, 2008) as well as e-learning acceptance.

In contrast to the proliferation of research on the informal e-learning by students in institutional contexts, theory-driven empirical studies on the e-learning in workplace settings are relatively rare. Especially in Korea, the studies on the interactions between instructors and learners in online informal learning are necessary to accomplish intended learning outcomes as well as quality informal learning experience. While many researchers posited that multimedia learning is effective (Chen & Wang, 2011), the effect of users' preferences of multimedia Web-based, i.e., inserting pictures to texts, the interactivity of pictures, and the visualization format of pictures on learning outcome such as ease of learning is still elusive (Rasch & Schnotz, 2009).

Despite the call for the educational use of Web-based technology, there have been few studies conducted regarding the Web-based systems to promote informal learning (Song & Lee, 2014). Despite the active adoption of multimedia Web-based learning in Korea, the empirical studies determining various users' preferential factors affecting its performance in the context of education and training systems in Korean companies where the preferences toward the learning systems are conservative have been scarce. There is a lack of studies in Korea on integrated model including contents, feedback and service related factors, and WLS performance.

Especially the studies on the differential effect of culture on WLS are necessary. According to Hall (1976), culture can be divided into the low- and high-context categories. In low-context cultures, languages as a tool of communication need to be accurately defined, and a large amount of information should exist during communication to offer contexts for meaning. In high-context cultures, on the contrary, languages as a means for communication are usually vague while most of the information which offers context for meaning has been internalized over time. Learning in the low-context culture emphasizes learning outcomes such as student-center learning, attitudinally based deep learning and the development of personal skills. In low-context culture, students see teachers as facilitators in the learning process; in the high-context culture, however, learning depends on teaching inputs (students as information recipients) and content-based learning (Entwistle, 1991; Maxwell, Adam, Pooran, & Scott, 2000).

Based on Hall's definition, South Korea with the cultural background strongly connected to Chinese falls in the category of the high-context culture. Based on categories of determinants of WLS such as contents, feedback, and service, the studies on the differential effect of these categories in the high context of culture of South Korea are almost non-existent. This study fills the gap. A holistic view which encompasses the complex characteristics of WLS is necessary to understand the determinants for ease of learning for WLS in Korea.

Based on the studies on informal learning and usability, the major purpose of this study is to investigate the users' preferential factors of ease of workplace learning in WLS business organizations. The implications of the results for the effective WLS for education in business organizations are discussed. This study can help build the conceptual framework of WLS and its dimensions in future study.

2. Research model

Computer aided education and intelligent education systems have been studied recently in such contexts as information search performance (Hong, Thong, & Tam, 2004), decision making tasks (Lim, O'Connor, & Remus, 2005), the tactics to be pursued in the multimedia learning (Antonietti & Giorgetti, 2006), the effects of media richness on the adoption of e-learning (Liu, Liao, & Pratt, 2009), and interactive multimedia instruction (Domagk, Schwartz, & Plass, 2010).

The research model is to investigate the effect of users' preferential factors of WLS on ease of workplace learning. Among various measures outcome such as learning effectiveness or satisfaction (Hui, Hu, Clark, Tam, & Milton, 2008), ease of use in learning system or ease of learning is one of the most crucial measures of learning outcome, and has been applied in various contexts (Ali, Asadi, Gašević, Jovanović, & Hatala, 2013; Lin, Hung, Chang, & Hung, 2014). Thus, this study intends to use ease of learning as a dependent variable.

Each user is likely to perceive WLS in a different way, which will subsequently affect the successful acceptance and use of WLS (Antonietti & Giorgetti, 2006; Chrysostomou et al., 2009). The studies on e-learning deal with such factors as contents of e-learning (e.g., Chen, Wei, Huang, & Kinshuk, 2013; Melo et al., 2014; Ozkan & Koseler, 2009), teaching strategy (controls of learning, feedback) (e.g., Buff, 2014; Coll, Rochera, & Gispert, 2014), and technical support (e.g., Ozkan & Koseler, 2009; Pedaste & Sarapuu, 2014; Schroeder, Minocha, & Schneider, 2010). Based on former literature, three groups of factors, i.e., interactive contents-related factors, feedback-related factors and service-related factors can theoretically cover important preferential factors for workplace e-learning in previous studies. The dependent factor is ease of workplace learning.

The high-context culture emphasizes teaching inputs and content-based learning regarding students as information recipients (Yang & Tsai, 2008). On the other hand, in the low-context culture, it is crucial to attain learning effect like deep learning based on attitudes, learning centered on students, and the cultivation of individual skills. The service related factors more strongly represent learners' beliefs of interactive learning context than contents-related factors as they pertain to motivation of learning along with perceived usefulness of information. Thus, this study intends to compare the strength of these groups of factors in order to explain the cultural effect of high-context learning in Korea (Fig. 1).

(1) Contents related preferential factors

The selection of contents, rationale in organizing education contents, clarity of education contents, ethics and justification of education contents are suggested to have an effect on the outcome of WLS. Firstly, the selection of contents should be suited for the specific presentation modality of multimedia with the aim of reducing cognitive load through the provision of graphs, imagery and animation that summarizes data physical form and motion. Contents which are very difficult to encode lower sustained attention because complex contents are lower in intellectual appeal (Andres, 2004). Learners' attention can be distracted from having animation that is not directly relevant to the training tasks, which may even result in unsatisfactory learning outcomes. It is crucial to monitor that the contents of training systems are closely related to users' tasks.

Secondly, in terms of contents structure, information contents should be organized so as to maximize the effectiveness of WLS. Superior training outcomes were observed when the training presentation was characterized as higher in coherent organization. Information search can be strongly interfered from the flash of high local density environments, which lengthens response time (Hong et al., 2004). The ease of information acquisition and the intention toward the system use can be influenced by preferences of learners regarding the presentation of document types (Yang & Chen, 2012).

Thirdly, on the importance of clarity of contents, Kahai and Cooper (2003) posited that clearer messages are likely to enhance understanding of the discussion topic, thereby improving decision quality. Media which allows for multiple cues and immediate feedback, affect decision quality by enabling a receiver to have a clearer understanding of messages. For the clarity of contents, instructional designers need to pay more attention to the characteristics of presentations of their learning contents.

Fourthly, the ethics of contents can be important for WLS performance for its effect on repletteness. During the rapid IT developments

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