Investigating university student preferences and beliefs about learning in the web-based context

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Abstract

Psychological studies have shown that personal beliefs about learning and environmental preferences affect learning behaviors. However, these learner characteristics have not been widely discussed in the web-based context. By developing questionnaires, this study attempted to detect learners' web-based learning environmental preferences (WLEP) and beliefs about web-based learning (BWL). The scope of WLEP focused on the pedagogical dimension of the web-based learning environment, while BWL concerned the attributes and control factors of the web-based learning. There were about five hundreds of Taiwan university students participating in the study. Through factor analysis, the scales discussed in the study revealed a satisfactory validity and reliability in assessing students' preferences and beliefs. Further analyses showed that university students preferred more of individual and structured instructional configurations while expected the outward mode of interaction. In general, students held a rather contextual belief about web-based learning, which was found to be correlated with their environmental preferences.
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1. Introduction

Although numerous forms of web-based learning environments have been created with the development of online technology (e.g. Chang, Yang, & Tsai, 2005; Linn, Clark, & Slotta, 2003; Mioduser, Nachmias, Oren, & Lahav, 1999; Tobin, 1998), Dillon (2000) found that the web-based hypermedia instructions in fact had not produced desired learning results. In the classroom context, a large body of psychological research highlights that successful learning depends on learner characteristics such as cognitive styles/preferences, learning styles, information processing strategies and epistemological beliefs (e.g. Cano-Garcia & Hughes, 2000; Hofer & Pintrich, 1997; Schommer, 1993; Tamir, 1985; Weinstein, Goetz, & Alexander, 1988). Accordingly, many researchers believe that a major obstacle for the practice of the web-based instruction was the limited

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understanding of users' characteristics (e.g. Dillon & Gabbard, 1998; Hartley & Bendixen, 2001; Martinez & Place, 2001; Russell, 1997). Hence, this study was designed to explore learner characteristics contributing to learning in the web-based context.

The first learner characteristic examined in the study is the learner preferences about the web-based learning environments. Many studies have shown that students' preferences toward learning environments were significantly associated with academic achievement, learning approaches as well as attitudes toward subject matters (e.g. Chang, Hsiao, & Barufaldi, 2006; Chang & Tsai, 2005; Chuang & Tsai, 2005; Kinchin, 2004; Meyer & Muller, 1990; Wierstra, Kanselaar, Van der Linden, & Lodewijks, 1999, 2003). In some studies, the personal environmental preference was used as an indicator of an individual's epistemological belief (e.g. Moore, 1989; Perry, 1999). However, most of previous studies on this topic were conducted in the traditional classroom with a few exceptions (e.g. Chang & Tsai, 2005; Chuang & Tsai, 2005; Papanikolaou, Grigoriadou, Magoulas, & Kornilakis, 2002; Tsai, 2005; Wang & Newlin, 2002). Besides, the research foci about the environmental preferences usually revolve around classroom settings (e.g. constructivist-oriented vs. positivist-oriented) and/or teacher–student relationships (e.g. teacher-centered vs. student-centered). Hardly any examined the environmental preferences from the pedagogical perspective. Hence, one purpose of the study was to develop a proper instrument to reveal learner preferences about the web-based learning environments in the pedagogical dimension.

Although studies about environmental preferences can be found in literature, few works analyzed the underlying determinants of personal preferences. The second part of the study is thus aimed to explore the psychological factors that might control the displays of personal preferences. Owing to few studies directly addressing this issue, the underlying factors discussed in the study were actually suggested by research concerning elements controlling learning behaviors. Among relevant studies, the personal belief system is the most frequently mentioned feature that is associated with learning. Literature reviews show that personal beliefs can be discussed from various standpoints. From the epistemological point of view, personal epistemology concerning beliefs about knowledge and knowing has been found to regulate human cognitive activities, including learning (e.g. Hofer & Pintrich, 1997; Kardash & Howerll, 2000; Schommer, 1993). Basically, it was found that the more evaluative- or constructivist-oriented personal epistemology, the better results of knowledge construction and reasoning (Kuhn, 1991; Quan & Alvermann, 1995; Schommer, 1993; Tsai, 1998; Tsai, 2000; Yang, 2005). From the motivational perspective, studies indicated that learners' competence-related beliefs and control beliefs predict academic performances (Pintrich, Marx, & Boyle, 1993; Wentzel & Wigfield, 1998). Extended from the motivational perspective, Ajzen (2002) proposed the theory of planned behavior (TPB) which specifies that learning behaviors are mediated by beliefs about learning consequences, control factors and social norms. In light of above research, this study proposed that personal beliefs including epistemological beliefs and beliefs about learning regarding learning consequences and control factors should explain to some extent the learner preferences toward learning environment.

As mentioned in TPB (Ajzen, 2002), beliefs about social norms influence significantly the learning behavior. Since social norms in a society originate from cultural values, another well-recognized factor contributing to learning is culture. The effects of culture have been identified in various areas of research, such as business management, psychology, education, performing arts and even online commercial advertisement (e.g. Chan, 1999; Enz, 1986; Hall, 1976; Korac-Kakabadse, Kouzmin, Korac-Kakabadse, & Saverym, 2001; Marcus & Gould, 2000; Maxwell, Adam, Pooran, & Scott, 2000; Triandis, 1989; Würtz, 2006). Basically, these studies pointed out that the cultural rituals and values are reflected on communication styles and social behaviors. Empirically in the research about web-based learning, the cultural differences have also been reported in perceptions toward online discussions, expectations about instructors and students, and styles of interaction and information approach (Cifuentes & Yu-chih, 2001; Macfayden, Chase, Reeder, & Roche, 2003; Morse, 2003). Accordingly, it is in expectation that the cultural difference should result in diverse preferences toward the web-based learning environments.

There are many definitions about culture which signal characteristic of various disciplines (e.g. Hall, 1976; Hofstede, 1991; Kluckhohn & Strodtbeck, 1961). Since teaching and learning is directly related to the use of language, this study adopted a popular version defined by Hall (1976). According to Hall (1976), culture can be distinguished into the low- and high-context categories. In low-context cultures, languages as a means of communication should be precisely defined, and a vast of information is needed during communication to pro-