A multi-dimensional measure of e-learning systems success

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We present the results of a systematic review of literature devoted to various aspects of e-learning success as a multidimensional measure of e-learning success (involving system use by learners, learner satisfaction, learning effectiveness and continuance intention dimensions),a structural model depicting the main determinants of e-learning success dimensions (which we find to be content quality, system quality, service quality and perceived task value) and the suggested cause-effect relationships. We also discuss an empirical procedure that we intend to use to validate the multidimensional measure we propose.

Key words: e-learning success, multidimensional measure, structural model

Introduction

Although many education practitioners consider e-learning systems to be an effective educational medium, merely implementing these does not guarantee success. Examination of the literature reveals a considerable number of studies which have attempted to conceptualize and measure e-learning systems success (Wang, 2007; Lee & Lee, 2008). However, a single measure, such as user satisfaction or learning effectiveness, does not give a comprehensive view of e-learning systems success (Wang et al., 2007). This suggests the importance of taking a multi-dimensional approach in measuring the overall success of e-learning systems.

The first aim of this study is to formulate a multidimensional measure of e-learning success. The second aim is to create a structural model accounting for the main determinants of e-learning success. In future research, we will use the structural model to assess the validity of the multidimensional measure of e-learning success.

Methodology

To formulate a multidimensional measure of e-learning success, we conducted a systematic review of literature. We used the ISI Web of Knowledge database (http://www.isiknowledge.com) to search articles in journals with SSCI impact factor of 0.9 and better in the subject categories "education", "information systems" and "psychology" for the keywords "user satisfaction", "acceptance", "effectiveness", "success" and "use" published between January 2000 and December 2008. Articles that matched these criteria and were devoted to e-learning (73 overall) were included in the scope of the review.

The measurement model

We summarize the literature by conceptualizing e-learning systems success as a multi-dimensional measure consisting of four dimensions: system use by learners, learner satisfaction, learning effectiveness and continuance intention (continuance intention being the intention of learners to continue relying on e-learning components in courses they take in the future). Validated instruments exist to measure all of these dimensions (actual system use being replaced by a surrogate measure of self-reported system use, and learning effectiveness - by self-reported learning).

The structural model

Along with analysing literature for different dimensions of e-learning systems success, we noted the factors demonstrated to influence such dimensions, and summarized the evidence regarding such determinants as a structural model depicted in Figure 1 below. We note that the model that emerged can be viewed as an adaptation of the generic information systems success model by DeLone & McLean (2003).

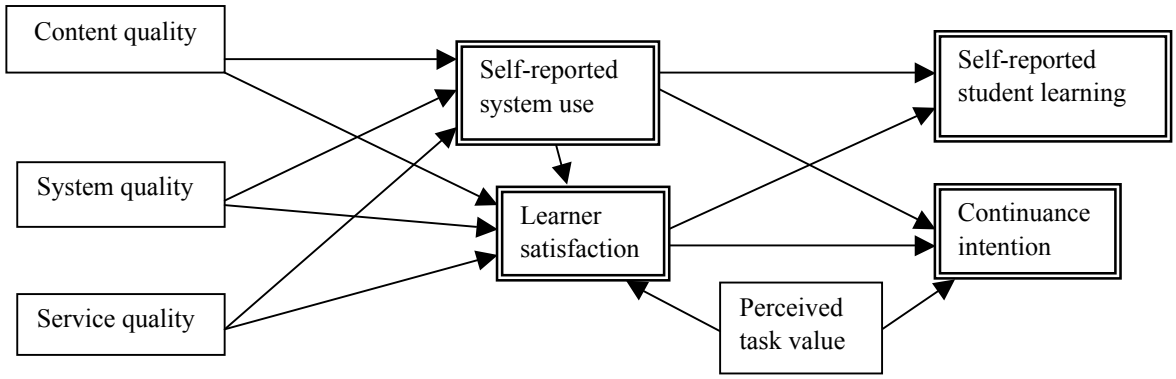

Figure 1: e-Learning success dimensions and their determinants

In Figure 1, the dimensions of e-learning success are depicted as rectangles with double borders, while their determinants are shown as rectangles with plain borders. Content quality refers to the quality of e-learning content, system quality refers to the technology aspect of the system (ease of use, reliability, responsiveness etc.), service quality refers to instructor and technical support involvement in e-learning experience, and perceived task value refers to the importance attached by the learner to being successful in the course. For all of the determinants, validated measures are available. All of the relationships shown in the model are positive (e.g., better content quality results in greater learner satisfaction).

Future research

In future research, we will validate the structural model by fitting it to data obtained in a cross-sectional survey involving large numbers of students taking part in distance courses with substantial reliance on e-learning. This will allow us to use standard statistical procedures, such as the partial least squares (PLS) technique (Tenenhaus et al. 2005), to verify that the dimensions of e-learning success extracted from the literature are sufficiently independent from each other and that the determinants of e-learning success impact the dimensions of success as suggested by prior studies in which the dimensions of e-learning success were considered individually, rather than as components of a multidimensional measure. We note that if the structural model is overall confirmed, it will constitute a strong evidence of construct validity of the multidimensional measure we proposed in this article (Bryman & Bell, 2007).

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