Pre-Implementation Technology Acceptance Model—In the Case of a University-Based Electronic Portfolio System

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Abstract. To reduce the risk of failure when implementing an innovation, understanding factors that may influence users' intention to use a system should be obtained before the system is implemented. This study proposed and tested a pre-implementation technology acceptance model. This model may help change agents to evaluate the feasibility of the innovation and to identify the key factors that may determine the success of the innovation.

Introduction

Enthusiasm and expectations about the benefits that an eportfolio system could bring for students has run very high recently. However, current practices of developing and implementing eportfolio systems are primarily determined by administrators or faculty; students' voices are substantially neglected from both practices and research (Ayala, 2006). Research shows that it is important to understand whether users view a product as valuable even before they have any real experiences with it, because such perceptions may strongly influence their intention to use the product and the level of satisfaction that they feel with it (Sweeny & Soutar, 2001). While Davis, et al. (1989) called for an investigation on "how far upstream in the development process we can push user acceptance testing (p.1000)," on the basis of the Diffusion of Innovation Theory (Rogers, 2003) and Technology Acceptance Model (Davis, et al.), this study proposed and tested a model to show how users' intentions to use an eportfolio system may be predicted by variables such as prior experiences, key usability concerns, perceived values, organizational championships, and attitudes before users have any chance to interact with the system. Eight hypotheses for the relations between these variables constituted this model.

H1: Perceived values may significantly influence users' intention to use an eportfolio system.

H2: Perceived values may significantly influence the perceived importance of the key usability concerns.

H3: Perceived key usability concerns may significantly influence users' attitude toward using an eportfolio system.

H4: Perceived importance of institutional championship may significantly influence the perceived values of an eportfolio system.

H5: Perceived importance of institutional championship may significantly influence the perceived importance of key usability features

H6: Perceived importance of institutional championship may significantly influence the attitudes toward using an eportfolio system.

H7: Users' attitudes toward using an eportfolio system may significantly influence users' intention to use it.

H8: Users' prior experience may significantly influence the perceived importance of the key usability features.

Method

A web-based questionnaire composed of 6 scales (for the aforementioned 5 predicting variables and 1 dependent variable) with a total of 40 items measured with 5-point Likert scales was developed. Exploratory and confirmatory factor analyses were conducted and identified two to three factors within each scales (Figure 1). Three hundred and sixty four college students who never used an eportfolio system before were invited to participate in this study.

AMOS was used to test the convergent validity. The standardized path loadings were all significant and greater than 0.7. The composite reliability (CR) and the Cronbach's alpha for all constructs exceeded 0.7, and the average variance extracted (AVE) for each construct was greater than 0.6. These results suggested satisfactory convergent validity of this model. The tests on the structural model found that all the fit indices and the parsimonious fit measures meet the recommended criteria (Figure 1). These results suggested that this model appropriately explains the structure of the data and that all hypotheses were supported.
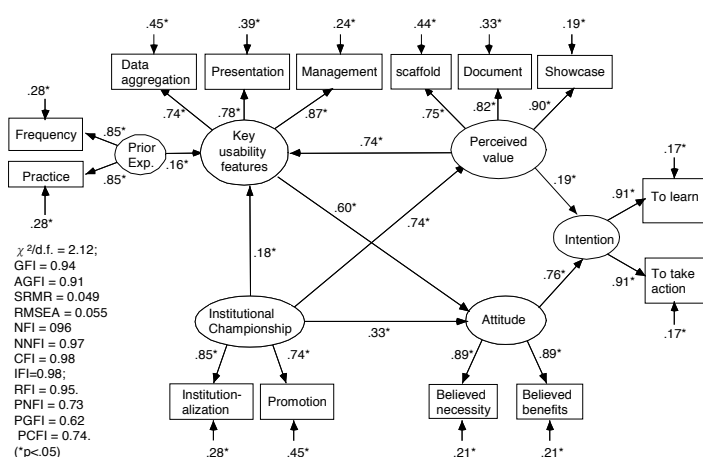

Figure 1. Testing results of the structural model

Conclusion

Implementing an information system, such as eportfolio in schools, is usually a big investment and often susceptible to failure if users' opinions were not well considered. This study provided a framework for understanding factors that influence users' intention to use a system before they have real experience with it. It helps to evaluate the feasibility of implementing an innovation.

References

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