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Videoconferencing-Mediated Instruction: Success Model

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ABSTRACT

Videoconferencing has seen rapid growth as an economical and effective distance education technology. In this study, a research model was proposed and employed to test the success of videoconferencing-mediated instruction (VCMI) in higher education institutions. The proposed research model examined the impact of videoconference reliability, student usefulness and university usefulness on the VCMI success. A survey instrument was distributed to university business students. A total of 266 usable responses were analyzed. Exploratory and confirmatory factor analyses were implemented using structural equation modeling techniques through LISREL version 8.51. A structural equation model was used to fit and validate the proposed research model, and the results indicated a good fit to the data. Student usefulness and reliability of video conferencing technology were proven to be key determinants of a successful integration of VCMI technology as an effective and efficient distance-learning tool. One of the implications of this study is that VCMI university usefulness is not a driving factor for VCMI success. Most of the causal relationships between the constructs considered by the VCMI research model were well supported, accounting for 90.7% of the total variance in the VCMI success.

Keywords: *distance education; distance learning; distributed learning environments; e-learning; improving classroom teaching; multimedia in education; teaching/learning strategies; videoconferencing*

INTRODUCTION

A very important issue surrounding VCMI is how to measure its success. This is important because, similar to other information technology investments, the use of VCMI needs to be justified. This calls for methodologies and valid measures to evaluate VCMI. Studies on the evaluation of VCMI's success or fit are few. There are three reasons for the need for VCMI evaluation: (1) to justify the existence of videoconferencing technology in distance educational institutions; (2) to improve the videoconferencing mediated instruction performance; and (3) to motivate instructors and students to adopt VCMI.

The concept of information technology success is accepted throughout information technology research as the principle criterion for evaluating information technologies. DeLone and McLean (1992)

Figure 1. First UAEU videoconferencing generation

Figure 2. Second UAEU videoconferencing generation

identified more than 100 measures utilized in 180 studies they reviewed. They proffered a relational model that interrelated six variable categories without providing empirical validation of the model. DeLone and McLean's model was later empirically and theoretically assessed (Rai, Lang, & Welker, 2002; Seddon, 1997). The area of educational technology is full of jargon, confusion and lack of structure (Nulden, 2001). Various models and frameworks have been proposed to give some structure to the educational technology field (i.e., Harasim, Hiltz, Teles, & Turoff, 1995; Laurillard, 1993; D. Leidner & Jarvenpaa, 1995; D.E. Leidner & Jarvenpaa, 1993). These, and many others, provide guidelines for how technology can be introduced and used to improve the teaching and learning processes in higher education. The steady evolution of educational technology has considerably influenced the development of learning (Jones & Knezek, 1995). Interactive videoconferencing or interaction by way of online Internet-based instructional and learning packages offer one-to-many tuition in which instructors and students are able to communicate synchronously (Katz, 2000). Some research studies have indicated that various modes of interactive distance-learning technologies give rise to positive change in the instructional and learning processes when compared with earlier distance-learning systems (Katz,